REPORTABLE

INFECTIOUS DISEASES

IN

KANSAS

1998 SUMMARY

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INTRODUCTION

Purpose and format of this report

This is the seventh annual summary of reportable diseases by the Kansas Department of Health and Environment (KDHE). The purpose of the report is to provide useful information on notifiable infectious diseases in Kansas for health care providers, public health workers and policy makers.

The report is divided into two sections. Section I presents summaries of 34 reportable diseases or conditions of public health importance in Kansas. Each of the diseases or conditions is presented with a brief overview of the disease, laboratory tests commonly used for diagnostics, and the surveillance case definition. A summary of the disease in Kansas including key statistics and trends is supplemented by tables and graphs. Rates have been calculated from 1997 census estimates (the most recent available data) to adjust for population size and allow for more meaningful interpretation of the data. Rates by demographic characteristics and proportional changes from last year are reported only when there were more than 50 cases of a disease reported in the state. Whenever possible, information on disease trends for the United States has been included for comparison with Kansas trends. If the total number of cases in the state was less than 5, then only limited demographic information is presented (to ensure confidentiality of the patients).

Disease incidence for urban and rural areas has been included for many diseases. Urban counties were defined as counties with a population density of 150 or more persons per square mile, and represent the four largest metropolitan areas in the state [Kansas City (Johnson and Wyandotte Counties), Wichita (Sedgwick County), Topeka (Shawnee County), and Lawrence (Douglas County)], which account for 49% of the population in the state. The remaining 100 counties in the state are classified as rural for the purposes of this report.

Section II provides the list of reportable diseases during 1998, a summary of cases of selected conditions by year for 1985-1998, and a summary of cases by county for 1998. Also included are a list of county abbreviations for use with Table 2, a map of Kansas with county names, and a list of publications on disease control from KDHE in 1998.

Disease reporting in Kansas

Selected diseases are reportable by law in Kansas by health care providers, laboratories and hospitals (Section II, Table 1). Reports of infectious diseases are usually first sent to the local health department, which is responsible for providing basic public health interventions such as providing immune globulin to a household contact of a person with hepatitis A or treating sexual contacts of a person with gonorrhea.

Reports are then sent to the Bureau of Epidemiology and Disease Prevention in the Kansas Department of Health and Environment for review. After reports have been entered into the National Electronic Telecommunications System for Surveillance (NETSS), weekly summaries are forwarded to the Centers for Disease Control and Prevention (CDC) for inclusion in the Morbidity and Mortality Weekly Report. The final step in the surveillance system occurs when CDC sends selected data to the World Health Organization.

Surveillance for influenza follows a different model. During 1998-1999 influenza season, eighteen physicians participated in the statewide sentinel physician-based surveillance system. Offices were contacted weekly by telephone to determine the number of patients seen with influenza-like illness by four age groups and total patient visits for all reasons. Influenza-like illness is defined as fever ($\geq$ 100 F [37.8 C], oral or

equivalent) *AND* cough or sore throat. To compare regional activity, aggregate information from Kansas is sent weekly to the Centers for Disease Control and Prevention. This system plays a key role to monitor influenza in the United States.

Important disease trends in 1998

There were no reported cases of the vaccine-preventable diseases diphtheria, measles, polio, or tetanus. The U.S. has been considered polio free since 1979. Mumps and *Haemophilus influenzae* b remained low at two and six cases, respectively. The number of reported acute hepatitis B cases decreased slightly in 1998 compared to 1997 (28 and 32 respectively). Thirty-five of the 36 rubella cases were related to an outbreak at western Kansas meat-packing plants. Sixty-one of the 71 pertussis cases were related to an outbreak in south-central Kansas.

The number of reported primary and secondary syphilis cases decreased dramatically after an increase the previous year. In 1998, the STD program received 12 reports of primary and secondary syphilis compared to 32 in 1997. This is a decrease of 63% from the previous year. Syphilis cases continue to be concentrated in urban regions of the state.

The incidence of gonorrhea continues to increase with 2,574 cases reported in 1998, this parallels national trends. Young adults age 20 to 24 and adolescents age 15 to 19 have higher rates of infection than other age groups. Like syphilis, gonorrhea is concentrated in the urban areas of the state.

Chlamydia remains the most frequently reported sexually transmitted disease in Kansas and 5,446 cases were reported in 1998. In contrast to gonorrhea and syphilis, chlamydia is more widely geographically distributed. Private providers reported the majority of chlamydia cases (72%). Over 80% of reported cases occurred among females. This gender disparity reflects the focus of chlamydia detection activities in the state which target females.

Among all 3 priority bacterial STDs, racial and ethnic minorities are disproportionately represented among reported cases, which mirrors national trends. This may reflect reporting bias (e.g., African-Americans may use public STD clinics more often for health care and be more likely to be screened or reported if positive). Both syphilis and gonorrhea infections are largely confined to the urban areas of the state, while at least one case of chlamydia occurred in 94 of 105 counties. This distribution is also reflective of the national trends. The majority of reported syphilis comes from public clinics (57%), whereas chlamydia and gonorrhea infections are reported primarily from private physicians and clinics (67% and 52% respectively).

The number of reported Kansas AIDS cases decreased from 1997 through 1998, as did the numbers for most other states. This decrease may be due to the progress being made in prevention and new treatments for HIV disease which delay the onset of AIDS. Male-to-male sex continues to be the leading risk behavior. The number of persons reported without a known risk factor remains relatively high (15%) for the first year after reporting. However, many cases are reclassified into known risk categories after further investigation. Only AIDS cases have been reported by name in Kansas through 1998. However, the 1999 Kansas legislature passed a bill to include reporting HIV by name to help identify new cases of infection for early treatment. This reporting will go into effect on July 1, 1999.

The number of reported cases of tuberculosis (TB) cases in 1998 (56) represented a 28% decrease from 1997 (78). The case rate for TB decreased from 3.0 per 100,000 in 1997 to 2.2 cases per 100,000 in 1998. This is well below the 1997 national rate of 7.4 cases per 100,000. Fifty-four percent of the reported cases of TB occurred among individuals reported as being foreign born. Resistance to at least one drug was documented in

14% (6/42) of cases for which drug susceptibility was tested, an increase from 8% in 1997 (4/57), but still below the 18% (13/60) reported in 1996. Only one case of multi-drug resistant TB was confirmed.

Enteric infections (salmonellosis, shigellosis and giardiasis) continued to be reported in large numbers. Reports of *E. coli* O157:H7 increased slightly during 1998, but the increase was due to an increase in sporadic cases and no outbreak was detected. Twelve foodborne outbreaks of gastro-intestinal illness were reported and formally investigated by Epidemiologic Services during 1998. Two of the food-related illness outbreaks were attributed to *Salmonella* (serotypes *agona* and *poona*), two to *Campylobacter*, one to *Clostridium perfringens* and no causative agent was positively identified in the remainder. One of the campylobacter outbreaks was associated with a food handler.

Interpreting the data

When interpreting the data in this report it is important to remember that disease reporting is incomplete and often varies by disease. For example, reporting of AIDS cases is estimated to be 90% complete whereas reporting of salmonella is estimated to be 3-5% complete. Absolute numbers are less meaningful than trends when interpreting the data. However, trends can be influenced by changes in case definitions or in reporting patterns or by random fluctuations. It is also important to note that since 59% (62/105) of counties in Kansas have populations less than 10,000, it is possible to have high rates of disease in these counties even if only very few cases are reported.

Acknowledgments

We would like to thank all the physicians, physician assistants, nurses, hospitals, laboratorians, county health department staff and others who participated in reportable disease surveillance during 1998. We would also like to acknowledge the Bureau of Epidemiology and Disease Prevention staff for their support.

Contributors

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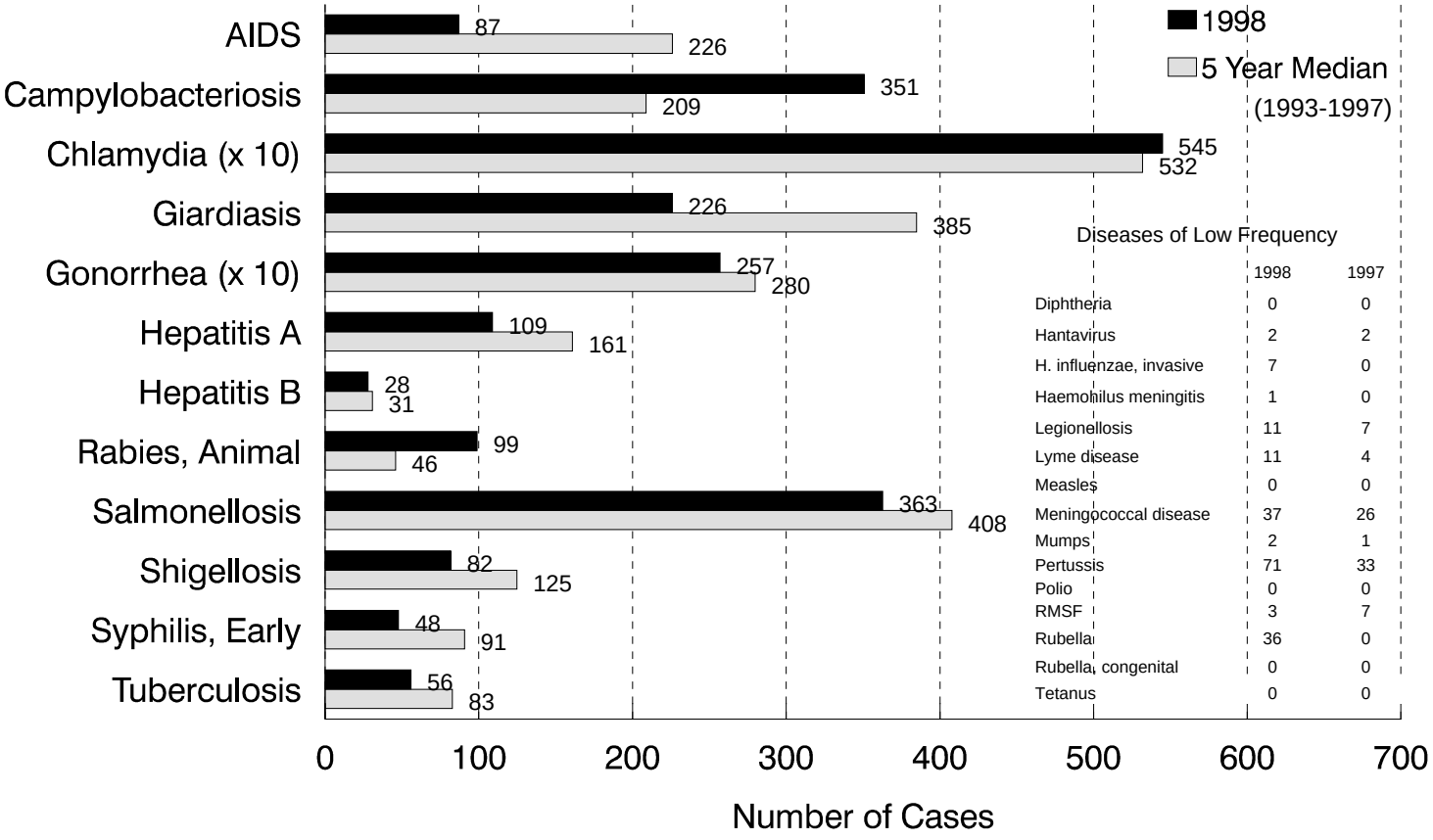
Useful web sites

The Reportable Diseases in Kansas, annual summary, containing summaries of disease of public health importance, is available on the internet. The address is: **http://www.kdhe.state.ks.us/epi**.

Health education facts sheets and brochures address public health can be found at: **http://www.kdhe.state.ks.us/health-info**.

Selected Reportable Diseases in Kansas, 1998



Diseases of Low Frequency

	1998	1997
Diphtheria	0	0
Hantavirus	2	2
H. influenzae, invasive	7	0
Haemophilus meningitis	1	0
Legionellosis	11	7
Lyme disease	11	4
Measles	0	0
Meningococcal disease	37	26
Mumps	2	1
Pertussis	71	33
Polio	0	0
RMSF	3	7
Rubella	36	0
Rubella, congenital	0	0
Tetanus	0	0

SECTION I

DISEASE

SUMMARIES

ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

AIDS is a severe, life-threatening condition which was first recognized as a distinct syndrome in 1981. It is caused by a virus, human immunodeficiency virus (HIV), that damages the body's immune system and destroys its ability to fight illness. AIDS itself doesn't kill the patient; rather it allows other infections and diseases to invade the body, and it is those opportunistic diseases that kill. Most people infected with HIV develop detectable antibodies within 1-3 months after infection, but may remain free of signs or symptoms for several months to years. Clinical illness may include lymphadenopathy, chronic diarrhea, weight loss, fever, and fatigue. The severity of HIV-related illness is, in general, directly related to the degree of immune dysfunction. The disease can be transmitted from person to person through unprotected sexual contact, sharing HIV-contaminated needles and syringes, from mother to infant, and transfusion of infected blood or its components. No vaccine exists for HIV infection, but considerable progress has been made in the development of antiretroviral therapies which slow viral progression and significantly reduce the amount of virus in an infected person.

Laboratory Criteria for Confirmation for Surveillance Purposes

- AIDS: Clinical diagnosis.

- HIV infection: Western blot confirmed (positive/reactive) antibody test, HIV p24 antigen test, polymerase chain reaction (PCR).

Surveillance Case Definition

- CDC has expanded the AIDS surveillance case definition to include all HIV-infected adolescents and adults aged $\geq$ 13 years who have either a) <200 CD4+ T-lymphocytes/µL; b) a CD4+ T-lymphocyte percentage of total lymphocytes of <14%; or c) any of 24 specific diseases or syndromes. Complete information on the case definition can be found in MMWR 1997; 46 (No. RR-10).

- The AIDS surveillance case definition for children aged <13 years includes the clinical conditions listed in the AIDS surveillance case definition found in MMWR 1997; 46 (No. RR-10).

Note: More detail AIDS information is available in the Kansas AIDS/STD Update, the "HIV/AIDS Epidemiologic Profile", and www.kdhe.state.ks.us/aids.

Epidemiology and Trends

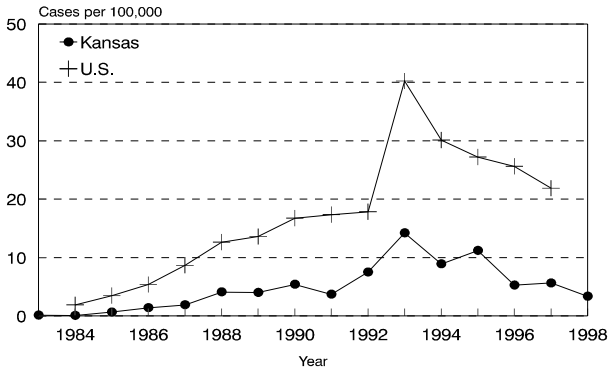
1998 Case Total	87
Kansas rate	3.4 per 100,000
U.S. rate (1997)	21.9 per 100,000
Rate by gender	
Female	0.9 per 100,000
Male	5.9 per 100,000
Rate by Race/ethnicity	
White	2.3 per 100,000
African-American	11.1 per 1000,000
Asian/Pacific Islander	2.3 per 100,000
Native American	8.6 per 100,000
Hispanic	9.8 per 100,000
Rate by geographic area	
Urban	4.7 per 100,000
Rural	2.0 per 100,000

As of December 31, 1998, 2,040 cumulative AIDS cases had been reported to KDHE. In 1998, 87 cases of AIDS were reported throughout Kansas, reflecting a 40% decrease from the 145 cases reported in 1997. This decrease may be due to the progress being made in prevention and new treatments for HIV disease. Kansas is considered a low-incidence state.

There were no cases reported among children less than 13 in 1998. The cases ranged in age from 22 to 66 years of age; median age was 35 years. The majority of cases of AIDS were in males (86%). Non-Whites, who represent less than 10% of the state's population, accounted for 38% of AIDS cases in 1998. The most populous county, Sedgwick, had the largest number of cases (27%). The four largest metropolitan area cases comprised 69% of the total number of cases.

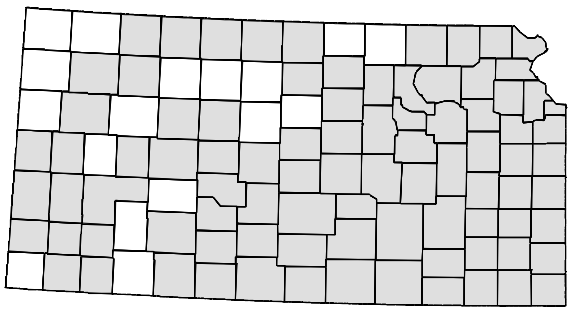
Men who have sex with men (MSM) account for the largest number of AIDS cases (56%), followed by cases directly attributable to heterosexual contact (16%), and injection drug use among MSM (11%). The most common mode of transmission in women was unprotected heterosexual contact (80%), and in men unprotected male to male sexual contact (65%).

AIDS rate by year of report
Kansas, 1983-1998



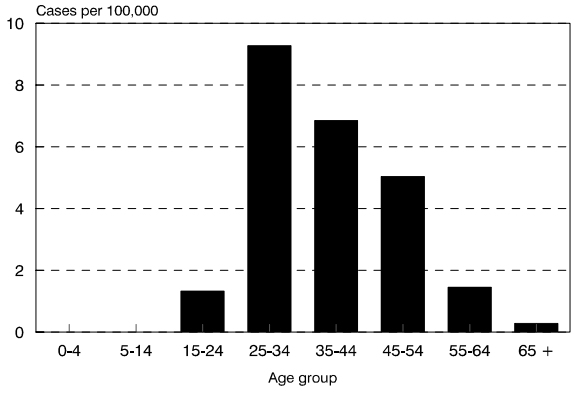
Comment: The introduction of a new case definition accounts for the large number of cases in 1993.

Counties affected by HIV/AIDS
Kansas, diagnosed 1981-1998



Shaded counties have reported or treated at least one person with HIV or AIDS

AIDS rate by age group
Kansas, 1998



AMEBIASIS

Amebiasis is an infection with the protozoan parasite *Entamoeba histolytica*. Most infections are asymptomatic but may become clinically important under certain circumstances such as with a liver abscess. Intestinal disease varies from acute or fulminating dysentery with fever, chills, and bloody or mucoid diarrhea (amebic dysentery), to mild abdominal discomfort with diarrhea containing blood or mucus alternating with periods of constipation or remission. The incubation period varies from a few days to several months or years; commonly 2-4 weeks. Transmission occurs mainly by ingestion of fecally contaminated food or water containing amebic cysts, or sexually by oral-anal contact. The cysts are relatively chlorine resistant and are not reliably killed by routine drinking water chlorination processes, but sand or diatomaceous earth filtration removes all cysts.

Laboratory Criteria for Confirmation for Surveillance Purposes

Intestinal amebiasis:

- Demonstration of *E. histolytica* cysts or trophozoites in stool, ***or***
- Demonstration of trophozoites in tissue biopsy or ulcer scrapings by culture or histopathology.

Extraintestinal amebiasis:

- Demonstration of *E. histolytica* trophozoites in extraintestinal tissue.

Surveillance Case Definition

- *Confirmed,* ***intestinal*** *amebiasis:* clinically compatible illness that is laboratory confirmed.

- *Confirmed,* ***extraintestinal*** *amebiasis:* a parasitologically confirmed infection of extraintestinal tissue, or among symptomatic persons (with clinical or radiographic findings consistent with extraintestinal infection), demonstration of specific antibody against *E. histolytica* as measured by indirect hemagglutination or other reliable immunodiagnostic test (e.g., enzyme-linked immunosorbent assay).

Epidemiology and Trends

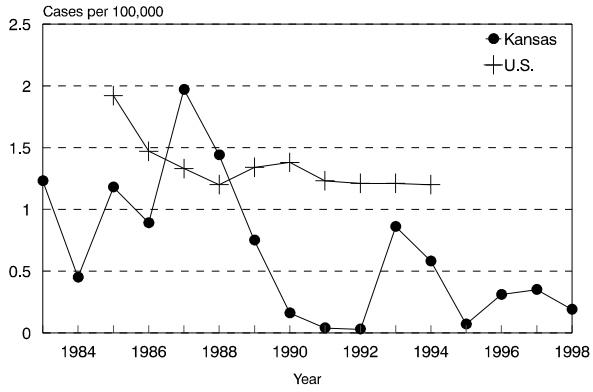
1998 Case Total	5
Kansas rate	0.2 per 100,000
U.S. rate (1994)	1.2 per 100,000

Cases by gender	
Female	2
Male	3

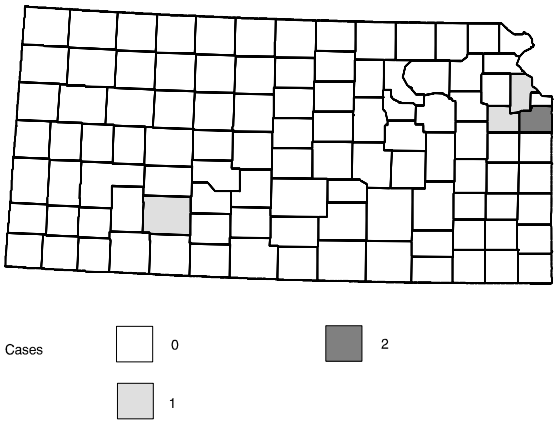
Cases by geographic area	
Urban	3
Rural	2

Eighty-six cases of Amebiasis were reported in Kansas for the ten year period 1989-1998. The largest number of cases was reported in 1993, 22 (26%); these were sporadic cases, no outbreaks were reported. In 1998, five cases were reported. The cases ranged in age from 21 to 56 years with a median age of 29.

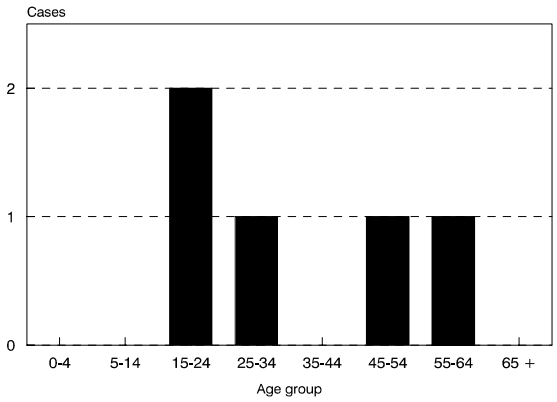
Amebiasis rate by year of report
Kansas, 1983-1998



Amebiasis cases by county
Kansas, 1998



Amebiasis cases by age group
Kansas, 1998



CAMPYLOBACTERIOSIS

Campylobacter is an acute bacteria enteric disease caused by *Campylobacter jejuni* and, less commonly, *C. coli*. It is characterized by diarrhea, abdominal pain, malaise, fever, nausea and vomiting. The illness is frequently over within 2-5 days. Prolonged illness and relapses may occur in adults. The mode of transmission is by ingestion of the organisms in undercooked poultry or pork, contaminated food and water, or raw milk; from contact with infected pets (especially puppies and kittens), farm animals or infected infants. Contamination of milk most frequently occurs from feces of carrier cattle; people and food can be contaminated from poultry, especially from common cutting boards. Person-to-person transmission appears to be uncommon with *C. jejuni*.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *Campylobacter* from any clinical specimen.

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed.
- *Probable:* a clinically compatible case that is epidemiologically linked to a confirmed case.

Outbreaks

- Campylobacter in Saline County

  Twenty-seven culture-confirmed cases of *C. jejuni* were found between August and October, and an additional 101 individuals with clinical signs were identified in Saline County. Almost half of the confirmed cases occurred in students, staff or persons known to have eaten at a school. The results of the cohort studies suggested that certain food items may have been contaminated from a symptomatic food handler at the school itself, which was supported by results of pulsed-field gel electrophoresis (PFGE). Besides the school based cases, we were unable to identify any other sources of contamination for this community outbreak.

- Campylobacter in Morton County

  Three culture-confirmed cases of *C. jejuni* and 2 clinical cases were reported from Morton County related to a taco bar at a restaurant. Inspection of the restaurant revealed that food preparation and serving deficiencies that could contribute to illness and food handling practices were implicated in this outbreak. Food handling violations including improper oversight of temperatures during preparation, and serving could have been responsible for the contamination and possibly of proliferation.

Epidemiology and Trends

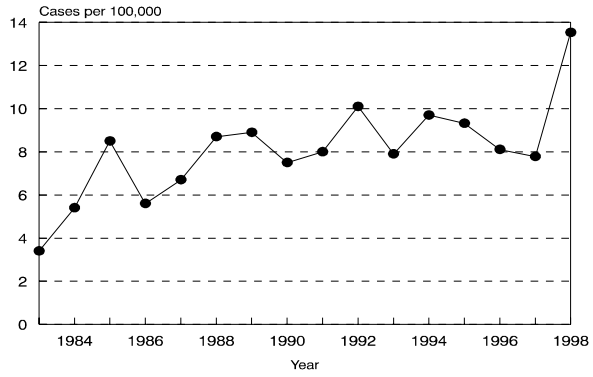
1998 Case Total	351
Kansas rate	13.5 per 100,000
U.S. rate (1997)	N/A
Rate by gender	
Female	11.5 per 100,000
Male	15.2 per 100,000
Rate by Race/ethnicity	
White	9.9 per 100,000
African-American	3.9 per 1000,000
Asian/Pacific Islander	4.5 per 100,000
Hispanic	8.3 per 100,000
Rate by geographic area	
Urban	12.5 per 100,000
Rural	14.5 per 100,000

Campylobactoriosis is one of the most commonly reported gastrointestinal illnesses in Kansas. In 1998, 351 cases were reported, higher than the five-year median of 209. This represented a 76% increase over the 200 cases reported in 1997.

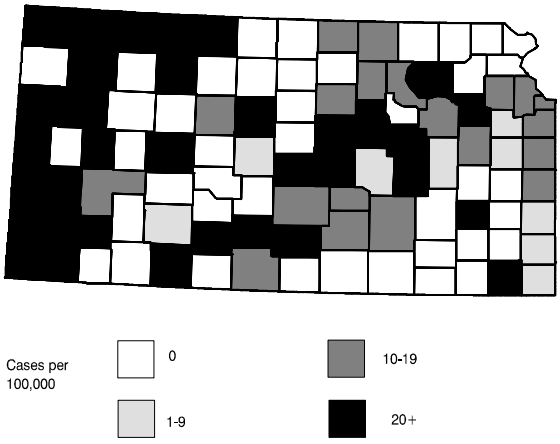
The cases ranged in age from less than 1 year to 93 years of age. The median age was 32 years and the highest incidence rate occurred in those 0 to 4 age group (27.3/100,000); 55% of the cases were in males. Sixty-seven percent of cases were Whites, 3% Hispanics, 2% African-Americans, 1% Asian/Pacific Islanders, and in 31% of cases race was not reported. Over half (55%) of the cases were reported from rural areas.

A serotype was known for 63% (222) of the cases reported. *C. jejuni* (92%, 205 cases) was the predominant serotypes, followed by *C. coli* (7%, 15 cases).

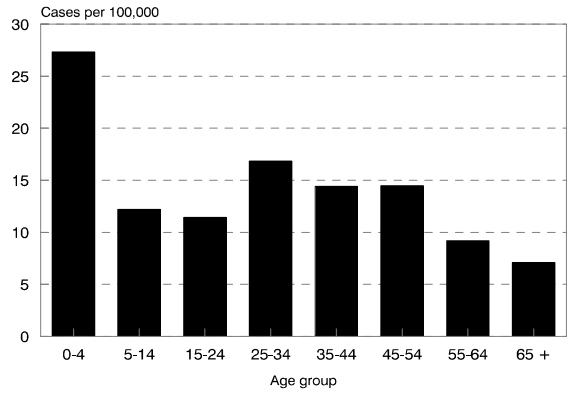
Campylobacteriosis rate by year
Kansas, 1983-1998



Campylobacteriosis rate by county
Kansas, 1998



Campylobacteriosis rate by age group
Kansas, 1998



CHANCROID

Chancroid is an acute bacterial infection caused by the bacillus *Haemophilus ducreyi*. The infection is localized in the genital area and characterized clinically by single or multiple painful, necrotizing ulcers at the site of infection, frequently accompanied by painful swelling and suppuration of regional lymph nodes. Minimally symptomatic lesions may occur on the vaginal wall or cervix; asymptomatic infections may occur in women and extragenital lesions have been reported. Chancroid ulcers, like other genital ulcers, are associated with increased risk of HIV infection. The incubation period is from 3 to 14 days. Transmission is by direct sexual contact with discharges from open lesions. Autoinoculation to nongenital sites may occur in infected people. Sexual abuse must be considered when chancroid is found in children beyond the neonatal period.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *H. ducreyi* from a clinical specimen.

Surveillance Case Definition

- *Confirmed:* a clinically compatible case that is laboratory confirmed.

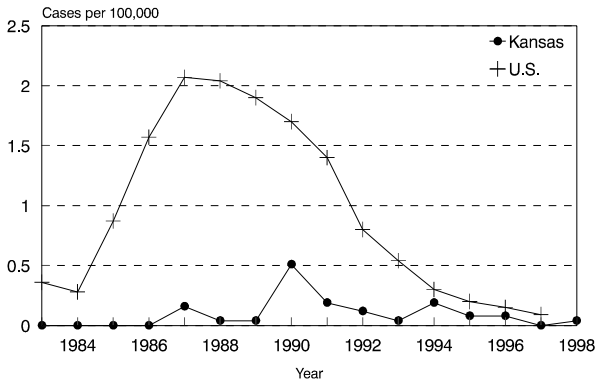
- *Probable:* a clinically compatible case with ***both***
  (a) no evidence of *Treponema pallidum* infection by darkfield microscopic examination of ulcer exudate or by a serologic test for syphilis performed $\geq$7 days after onset of ulcers
  and
  (b) either a clinical presentation of the ulcer(s) not typical of disease caused by herpes simplex virus (HSV) or a culture negative for HSV.

Epidemiology and Trends

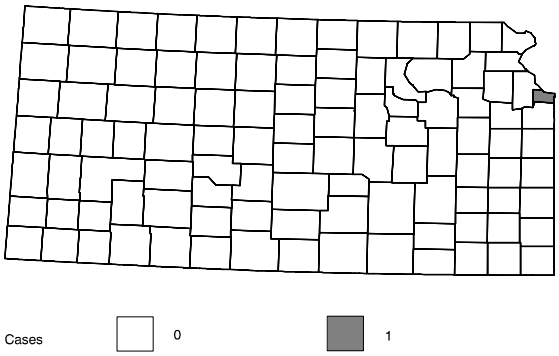
1998 Case Total	1
Kansas rate	<0.1 per 100,000
U.S. rate (1997)	0.1 per 100,000

A total of 38 cases of Chancroid were reported in Kansas between 1983 and 1998. The largest number of cases were reported in 1990 with 13 cases (34%); most years one to five cases are reported.

Chancroid rate by year of report
Kansas, 1983-1998



Chancroid cases by county
Kansas, 1998



CHLAMYDIA

Chlamydia trachomatis is a sexually transmitted genital infection which is manifested in males primarily as a urethritis, and in females as a mucopurulent cervicitis. Asymptomatic infections are common. Clinical manifestations of urethritis are often difficult to distinguish from gonorrhea and include mucopurulent discharges of scanty or moderate quantity, urethral itching, and burning on urination. The incubation period is poorly defined, probably 7-14 days or longer. Complications of chlamydia in males include epididymitis that can lead to sterility. Individuals who engage in receptive anorectal intercourse may develop chlamydia proctitis. Common complications in women include salpingitis and chronic infection of the endometrium and fallopian tubes. These complications can lead to infertility and ectopic pregnancies. Endocervical chlamydia infection has been associated with increased risk of HIV infection. Perinatal infections may result in inclusion conjunctivitis and pneumonia in newborns.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *C. trachomatis* by culture ***or***
- Demonstration of *C. trachomatis* in a clinical specimen by detection of antigen or nucleic acid.

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed.
- *Probable:* a written morbidity report of chlamydia submitted by a physician.

Comment

- Chlamydia officially became reportable in 1985. State-wide screening began in 1990, targeting females $\leq$29 years of age. In July of 1995, the screening criteria were amended based on data collected in both the state and the region. Guidelines, adopted by the Region VII Infertility Prevention Project (which includes Iowa, Kansas, Missouri, and Nebraska), screen the following individuals: (1) all female STD clinic patients, (2) in family planning clinics, all females $\leq$24 years old, and females $\geq$25 years old with one of the following characteristics: contact to an STD, symptoms suggesting an STD, and/or a new sexual partner since last exam. In addition, prenatal clinics screen all clients upon initial exam.

- In 1998, a total of 41,922 tests were performed by Kansas Health and Environmental Laboratory, Sedgwick and Wyandotte County labs with an overall chlamydia positivity rate of 4.5% (1,904/41,922). The total of 5,446 reported chlamydia cases for 1998 are reported from providers and laboratories across Kansas.

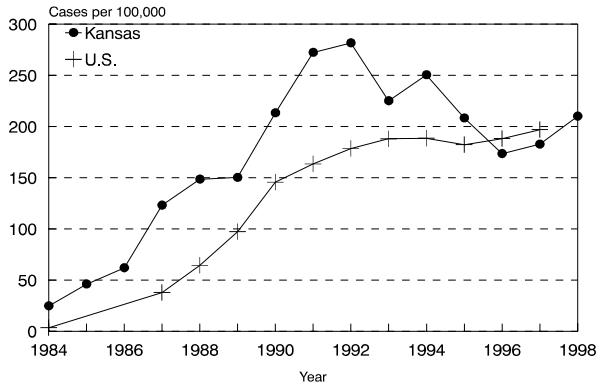
Epidemiology and Trends

Case Total	5,446
Kansas rate	209.9 per 100,000
U.S. rate (1997)	196.8 per 100,000
Rate by gender	
Female	344.0 per 100,000
Male	71.6 per 100,000
Rate by Race/ethnicity	
White	115.3 per 100,000
African-American	1,228.6 per 1000,000
Asian/Pacific Islander	172.6 per 100,000
Native American	241.5 per 100,000
Hispanic	463.0 per 100,000
Rate by geographic area	
Urban	267.7 per 100,000
Rural	154.9 per 100,000

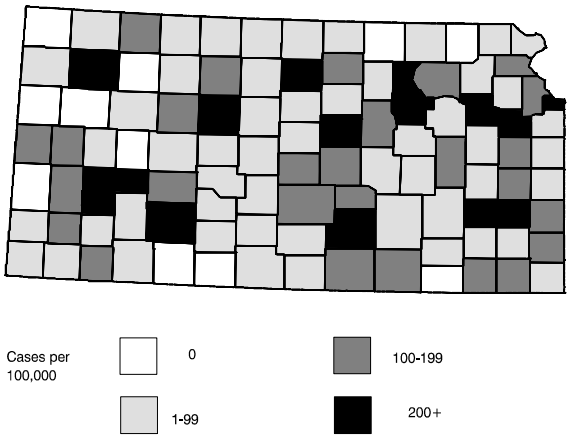
Chlamydia continues to be the most commonly reported sexually transmitted disease in Kansas, with 94 of 105 counties reporting at least one case in 1998. A total of 5,446 chlamydia infections were reported during 1998, slightly higher than the five-year median of 5,315. This represented an increase of 16% over the 4,698 cases reported in 1997.

The cases ranged in age from 1 to 67 years with a median age of 20, with 83% of the reported cases among females. The distribution of cases by race/ethnicity was 50% White, 34% African-American, and 11% Hispanic. The highest morbidity occurred in the 15-19 age group (42%) with a case rate of 1,131.2/100,000, followed by the 20-24 year olds (38%) with a rate of 1,195.4/100,000. Chlamydia was geographically distributed throughout the state. Geary County reported the highest case rate in the state at 1,433.6/100,000. The largest number of cases and highest rates occurred in the four largest metropolitan areas which accounted for 62% of the cases.

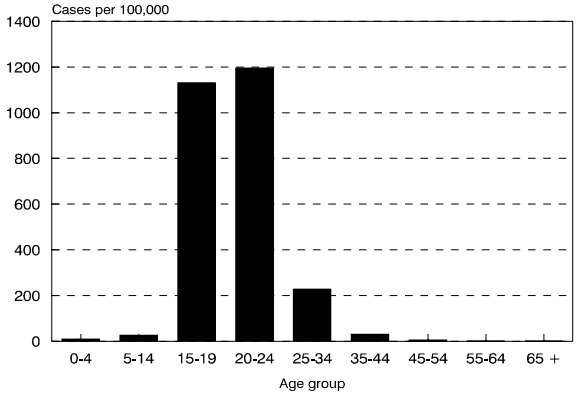
Chlamydia rate by year
Kansas, 1984-1998



Chlamydia rate by county
Kansas, 1998



Chlamydia rate by age group
Kansas, 1998



CRYPTOSPORIDIOSIS

Cryptosporidiosis is caused by the parasite *Cryptosporidium parvum*. Illness is characterized by diarrhea, abdominal cramps, loss of appetite, low-grade fever, nausea, and vomiting. Symptoms often wax and wane but disappear in less than 30 days in most immunologically healthy people and infected persons may be asymptomatic. The disease can be prolonged and life-threatening in severely immunocompromised persons. Incubation period is not precisely known, but 1-12 days is the likely range. It is spread by fecal-oral contact. Hands can become contaminated with parasites when a person changes the diaper of an infant with cryptosporidiosis or from improper hand washing after toileting. Pets, farm animals, and unpasteurized milk can also transmit the parasite. Outbreaks have been associated with drinking contaminated water, bathing in contaminated swimming pools and lakes, and drinking unpasteurized apple cider. Normal water chlorination processes are not effective against the oocyst form of the parasite. Heating water to 45°C (113 °F) for 5-20 minutes, 60 °C (140 °F) for 2 minutes, or chemical disinfection with 10% formalin or 5% ammonia solution is effective.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Demonstration of *Cryptosporidium* oocysts in stool, ***or***
- Demonstration of *Cryptosporidium* in intestinal fluid or small-bowel biopsy specimens, ***or***
- Demonstration of *Cryptosporidium* antigen in stool by a specific immunodiagnostic test (e.g., enzyme-linked immunosorbent assay).

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed.
- *Probable:* a clinically compatible case that is epidemiologically linked to a confirmed case.

Epidemiology and Trends

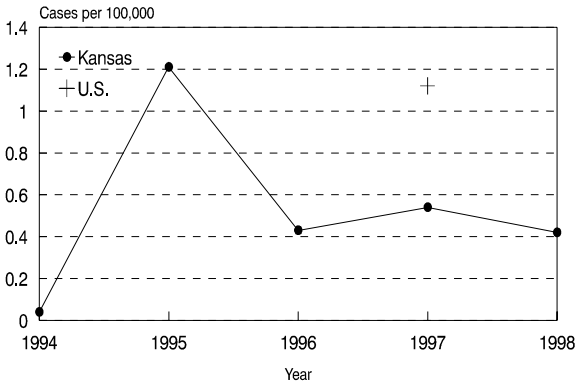
1998 Case Total	11
Kansas rate	0.4 per 100,000
U.S. rate (1997)	1.1 per 100,000

Cases by gender	
Female	3
Male	8

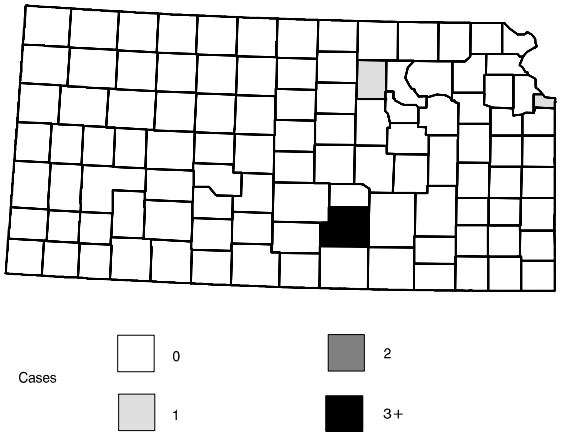
Cases by geographic area	
Urban	10
Rural	1

Cryptosporidiosis has been a reportable disease in Kansas since 1996. In 1998, there were 11 cases of cryptosporidiosis reported in Kansas. The cases ranged in age from less than 1 year to 72 years. The median age was 29 years. Eight cases (73%) were male. The majority of the cases (10) were reported from urban areas.

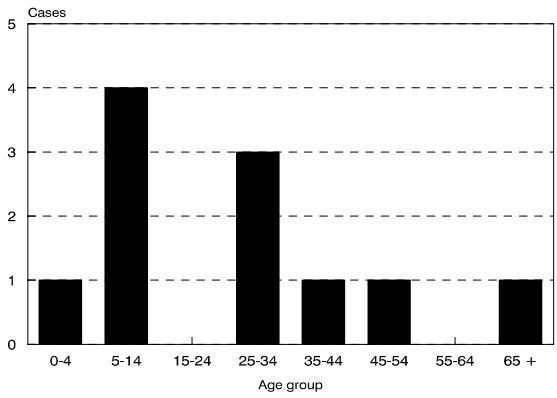
Cryptosporidiosis rate by year
Kansas, 1994-1998



Cryptosporidiosis cases by county
Kansas, 1998



Cryptosporidiosis cases by age group
Kansas, 1998



Escherichia coli O157:H7 (including hemolytic uremic syndrome)

E. coli O157:H7 is one of hundreds of strains of the bacterium *Escherichia coli*. Although most strains are harmless and live in the intestines of healthy humans and animals, this strain produces a powerful toxin and can cause severe illness. It is characterized by bloody and non-bloody diarrhea, accompanied by abdominal cramps. The infection it causes can lead to the hemolytic uremic syndrome (HUS - a blood and kidney illness) and thrombotic thrombocytopenic purpura (TTP - a blood and kidney illness that can also affect the nervous system). Young children and the elderly are at increased risk for the severe complications of this infection, occasionally resulting in death. Asymptomatic infections may also occur. Incubation period is from 3 to 8 days, with a median of 3-4 days.

E. coli O157:H7 infections have been linked to eating under-cooked ground beef and drinking unpasteurized contaminated juice. Recent outbreaks have been traced back to contaminated produce. The organism can also spread easily from person to person, especially in day care centers and nursing homes. Waterborne transmission has occurred.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of Escherichia coli O157:H7 from a specimen ***or***
- Isolation of Shiga toxin-producing *E. coli* O157:NM from a clinical specimen.

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed.
- *Probable:* (a) a case with isolation of *E. coli* O157 from a clinical specimen, pending confirmation of H7 or Shiga toxin ***or***
  (b) a clinically compatible case that is epidemiologically linked to a confirmed or probable case.
- *Suspected:* a case of postdiarrheal HUS or TTP.

Comment

- Confirmation is based on laboratory findings, and clinical illness is not required.

- Kansas laws require that isolates be sent to Kansas Health and Environmental Laboratory for serotyping.

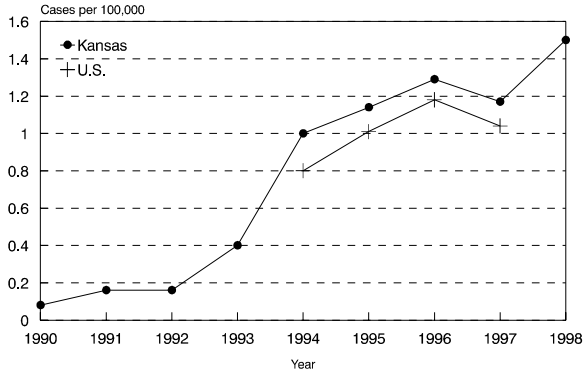
Epidemiology and Trends

1998 Case Total	39
Kansas rate	1.5 per 100,000
U.S. rate (1997)	1.0 per 100,000
Cases by gender	
Female	27
Male	12
Cases by geographic area	
Urban	10
Rural	29

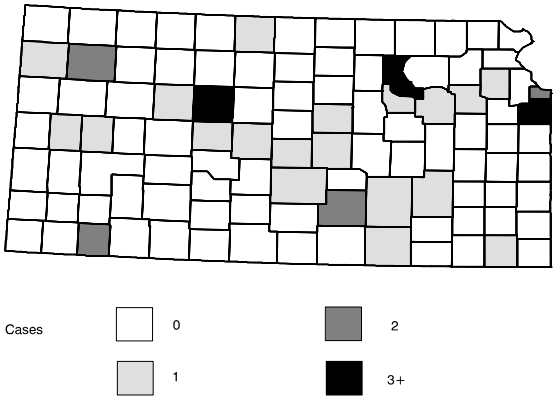
E. coli O157:H7 infection has been a reportable disease in Kansas since 1996. There were 39 cases of *E. coli* reported in Kansas in 1998, including 3 hemolytic uremic syndrome cases. These were apparently sporadic cases; no outbreaks were detected in 1998.

The cases ranged in age from less than 1 year to 90 years of age. The median age was 17 years. The highest incidence occurred in those 0-4 years of age. Twenty-seven cases (69%) were female, and 29 cases (74%) were reported from rural areas.

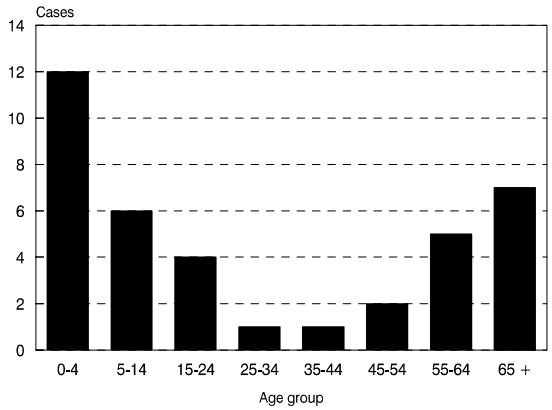
E. coli O157:H7 rate by year
Kansas, 1990-1998



E. coli O157:H7 cases by county
Kansas, 1998



E. coli O157:H7 cases by age group
Kansas, 1998



ENCEPHALITIS, INFECTIOUS

An encephalitis is an acute inflammatory viral disease of short duration involving parts of the brain, spinal cord and meninges. Infectious agents associated with encephalitis may be viral, fungal, or bacterial. Encephalitis also may be post-infectious, with onset two to twelve days after a primary viral infection such as measles, varicella, rubella, or mumps. Some forms of infectious encephalitis are mosquito-borne (arboviral encephalitis). Signs and symptoms of these diseases are similar but vary in severity and rate of progress. Most infections are asymptomatic; mild cases often occur as febrile headache or aseptic meningitis. Severe infections are usually marked by acute onset, headache, high fever, stupor, disorientation, coma, tremors, occasionally convulsions (especially in infants), and paralysis. The incubation period and mode of transmission varies depending on the infectious agent.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Fourfold or greater change in serum antibody titer, ***or***

- Isolation of infectious agent from or demonstration of viral antigen or genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid, ***or***

- Specific immunoglobulin M (IgM) antibody by enzyme immunoassay (EIA) antibody captured in CSF or serum. Serum IgM antibodies alone should be confirmed by demonstration of immunoglobulin G antibodies by another serologic assay (e.g., neutralization or hemaglutination inhibition).

Surveillance Case Definition

- *Confirmed:* a clinically compatible case that is laboratory confirmed.

- *Probable:* a clinically compatible case occurring during a period when arboviral transmission is likely, and with the following supportive serology: a stable ($\leq$ twofold change) elevated antibody titer to an arbovirus (e.g., $\geq$320 by hemagglutination inhibition, $\geq$128 by complement fixation, $\geq$256 by immunofluorescence, and $\geq$160 by neutralization, or $\geq$400 by enzyme immunoassay IgM).

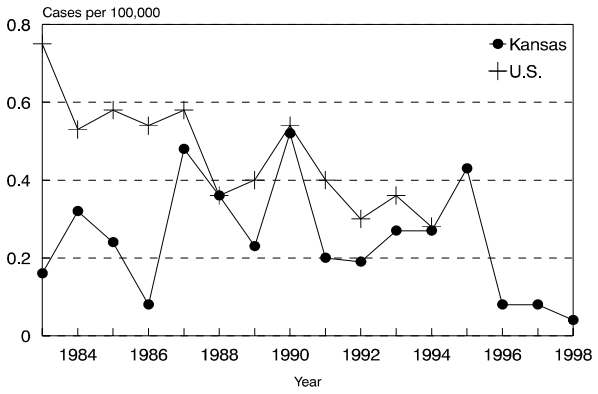
Epidemiology and Trends

1998 Case Total	1
Kansas rate	<0.1 per 100,000
U.S. rate (1994)	0.3 per 100,000

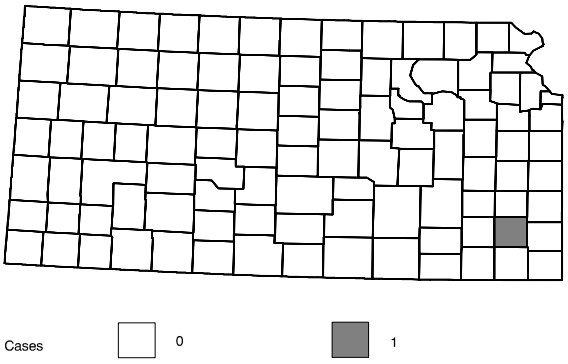
In Kansas, there was one viral encephalitis case reported in 1998.

There were total of 125 Saint Louis encephalitis and 36 Western equine encephalitis cases reported in Kansas between 1964-1998. No arboviral encephalitis cases were reported in 1998.

Primary Encephalitis rate by year
Kansas, 1983-1998



Primary Encephalitis cases by county
Kansas, 1998



GIARDIASIS

Giardiasis is an illness caused by *Giardia lamblia*, a one-celled, microscopic parasite that lives in the intestines of people and animals. The most common symptoms are diarrhea, abdominal cramps, and nausea, but asymptomatic infections may also occur. Symptoms may lead to weight loss and dehydration, appear 1-2 weeks after infection, and may last 4-6 weeks. It is most commonly transmitted through oral-fecal contact and by water contaminated with feces.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Demonstration of *Giardia lamblia* cysts in stool, ***or***
- Demonstration of *Giardia lamblia* trophozoites in stool, duodenal fluid, or small bowel biopsy, ***or***
- Demonstration of *Giardia lamblia* antigen by specific immunodiagnostic test such as Direct Fluorescent Antigen (DFA).

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed.

Epidemiology and Trends

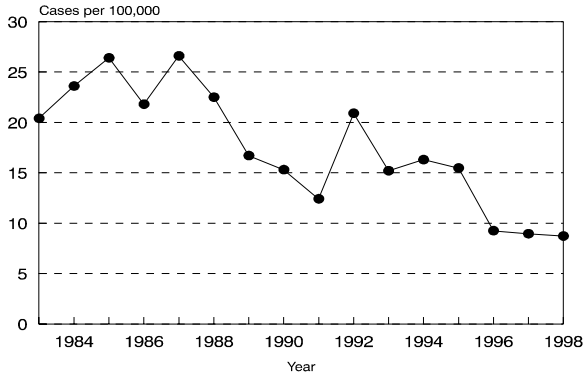
Case Total	226
Kansas rate	8.7 per 100,000
U.S. rate (1997)	N/A
Rate by gender	
Female	8.0 per 100,000
Male	9.4 per 100,000
Rate by Race/ethnicity	
White	7.0 per 100,000
African-American	3.3 per 1000,000
Asian/Pacific Islander	13.6 per 100,000
Native American	4.3 per 100,000
Hispanic	6.0 per 100,000
Rate by geographic area	
Urban	8.1 per 100,000
Rural	9.3 per 100,000

In Kansas, there were 226 giardia cases reported in 1998, a slight decrease compared to 230 cases in 1997. The disease in general decreased over the past 10 years.

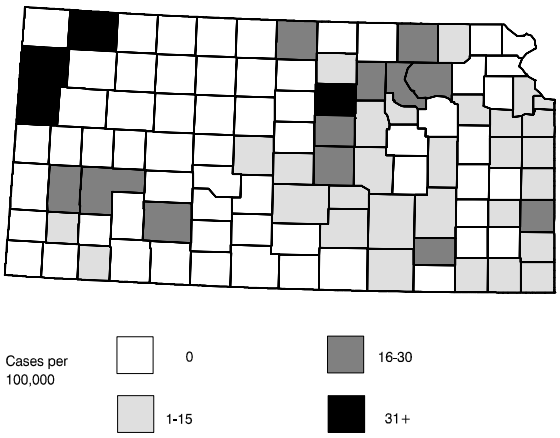
The cases ranged in age from less than 1 year to 76 years of age (median 26). This disease continues to affect primarily those 0-4 years of age with an incidence rate of 34 cases per 100,000 population. The majority of cases were Whites (74%), with an incidence rate of 7/100,000.

Over half (55%) of the cases were reported from rural areas. However, among specific counties, Johnson county had the highest number of reported cases with a county-specific rate of 8.6/100,000, followed by Sedgwick county with a county-specific rate of 8.5/100,000.

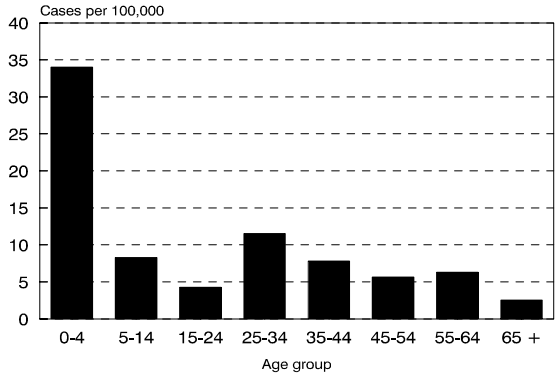
Giardiasis rate by year
Kansas, 1983-1998



Giardiasis rate by county
Kansas, 1998



Giardiasis rate by age group
Kansas, 1998



GONORRHEA

Gonorrhea is a bacterial infection caused by *Neisseria gonorrhea*. Symptoms of gonorrhea usually appear within two to 10 days after sexual contact with an infected partner, although a small percentage of patients may be infected several months without showing symptoms. In males it is usually characterized by a purulent urethral discharge and dysuria. In females, there is an initial urethritis or cervicitis often so mild it may pass unnoticed. Dependent upon sexual practices, pharyngeal and anorectal infections can occur. In males, the urethral infection is usually self-limiting; however, it may progress to epididymitis, and in rare cases, it can disseminate into an arthritis-dermatitis syndrome, endocarditis, and meningitis. Twenty percent of women infected with gonorrhea may progress to uterine infection which may lead to endometritis, salpingitis pelvic inflammatory disease (PID), and the subsequent risk of infertility.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of typical gram-negative, oxidate-positive diplococci (presumptive *Neisseria gonorrhoeae*) from a clinical specimen, ***or***
- Demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or nucleic acid, ***or***
- Observation of gram-negative intracellular diplococci in a urethral smear obtained from a male.

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed.

- *Probable:* (a) demonstration of gram-negative intracellular diplococci in an endocervical smear obtained from a female ***or***
  (b) a written morbidity report of gonorrhea submitted by a physician.

Comments

- The gonorrhea screening program began in Kansas in 1973, providing testing in STD, prenatal, family planning, student health and prison facilities. The STD program contracts with Sedgwick and Wyandotte County Health Department Laboratories to perform tests for selected physicians of these communities.

- In 1998, a total of 41,922 tests were performed by Kansas Health and Environmental Laboratory, Sedgwick and Wyandotte County laboratories with an overall positivity rate of 1.9% (782/41,922). The total of 2,574 reported gonorrhea cases for 1998 are are reported from providers and laboratories across Kansas.

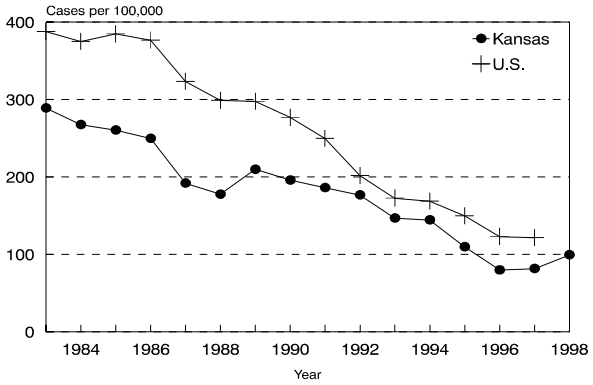
Epidemiology and Trends

Case Total	2,574
Kansas rate	99.2 per 100,000
U.S. rate (1997)	121.4 per 100,000
Rate by gender	
Female	108.6 per 100,000
Male	89.5 per 100,000
Rate by Race/ethnicity	
White	25.9 per 100,000
African-American	1126.4 per 100,000
Asian/Pacific Islander	31.8 per 100,000
Native American	60.4 per 100,000
Hispanic	127.4 per 100,000
Rate by geographic area	
Urban	165.3 per 100,000
Rural	36.2 per 100,000

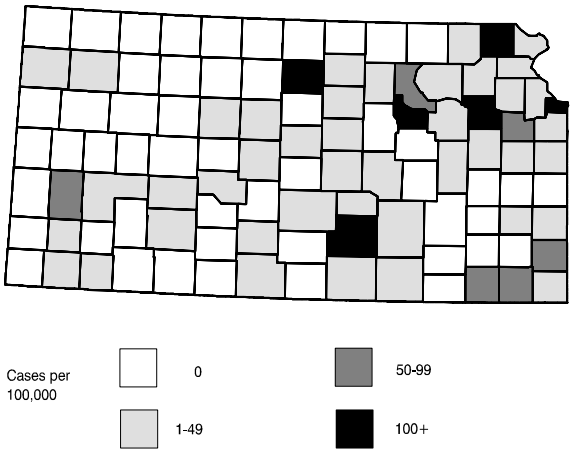
Gonorrhea is the second most commonly reported sexually transmitted disease in Kansas. In 1998, 2,574 cases of gonorrhea were reported in Kansas, an increase of 23% from 1997 (2,094). The cases ranged from 0 to 67 years of age. The median age was 22 years, and 56% of the cases were females (1,430). Almost 64% of cases were in those 15-24 years of age.

Minority racial/ethnic groups are disproportionately affected by gonorrhea in Kansas. More than half of the reported cases were among African-Americans (67%). The case rate in this population group was 1135.6/100,000, compared to 28.1/100,000 for Whites and an overall state rate of 99.2/100,000. This may reflect reporting bias, as described in the introduction. The rate among Hispanics was 127.4 per 100,000 population. The highest case rates for gonorrhea were in Wyandotte (525.8) and Sedgwick (186.5) counties. Wyandotte (852) and Sedgwick (753) counties accounted for 62% of the cases.

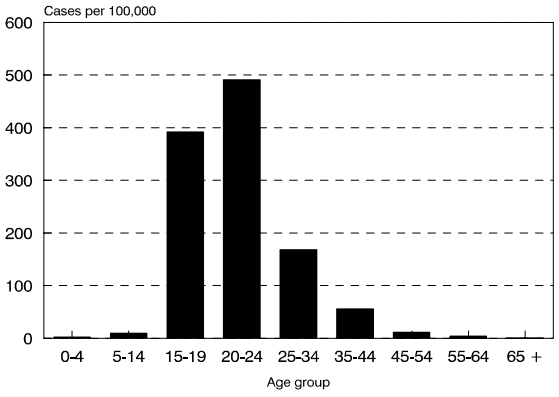
Gonorrhea rate by year
Kansas, 1983-1998



Gonorrhea rate by county
Kansas, 1998



Gonorrhea rate by age group
Kansas, 1998



Haemophilus influenzae, invasive disease*

Haemophilus influenzae is a Gram-negative cocobacilli that causes invasive disease such as meningitis, septic arthritis, epiglottitis, cellulitis, bacteremia, and pneumonia. Invasive disease can be caused by serotypes a through f. Most cases of invasive diseases in children were caused by type b before the introduction of *H. influenzae* type b (Hib) conjugate vaccination. The source of the organism is the upper respiratory tract of humans. Symptoms may include fever, lethargy, vomiting, and a stiff neck. Other symptoms depend on the part of the body affected. The incubation period is short, from 2 to 4 days. Antibiotic prophylaxis may be recommended when susceptible children are exposed to serotype b cases. The mode of transmission is presumably person to person, by direct contact, or through inhalation of droplets of respiratory tract secretions.

The first conjugate vaccine against Hib became available in 1987. There are currently several Hib conjugate vaccines licensed by the U.S. Food and Drug Administration. Recommendations are that all children be immunized with an approved Hib vaccine beginning at two months of age or as soon as possible thereafter. Recommendations for scheduling of subsequent doses vary depending on the manufacturer. High levels of immunization among children have caused a dramatic decrease in the incidence of this decrease.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *H. influenzae* from a normally sterile site (e.g., blood, cerebrospinal fluid [CSF], joint, pleural, or pericardial fluid).

Surveillance Case Definition

- *Confirmed:* a clinically compatible case that is laboratory confirmed.
- *Probable:* a clinically compatible case with detection of *H. influenzae* type b antigen in CSF.

Comment

- Positive antigen test results from urine or serum samples are unreliable for diagnosis of *H. influenzae* disease.
- All suspected cases of *H. influenzae* type b are reviewed by the KDHE Immunization Program staff.

***** Invasive means bacteria isolated from blood, bone, joint, pericardial fluid, peritoneal fluid, pleural fluid, or spinal fluid.

Epidemiology and Trends

1998 Case Total	7
Kansas rate	0.3 per 100,000
U.S. rate (1997)	0.4 per 100,000

Cases by gender	
Female	3
Male	4

Cases by geographic area	
Urban	4
Rural	3

In 1998, seven invasive *Haemophilus influenzae* infections were reported in Kansas. All of the cases were specifically reported as Hib infections, including one *H. influenzae* type b meningitis case. The cases ranged in age from 1 to 100 years of age. Six of the cases were over age of 40. Four of the cases were males. Four cases were reported from urban areas. None of the cases had documentation of Hib vaccination.

Polysaccharide conjugate vaccines became available in 1990 for use in infants as young as 6 weeks of age and there was an immediate and sustained decrease in the number of reported Hib cases among children in Kansas. The same pattern was seen throughout the U.S. Before introduction of the vaccine, an average of 31- 72 cases were seen annually, now 0-7 cases are reported annually in Kansas.

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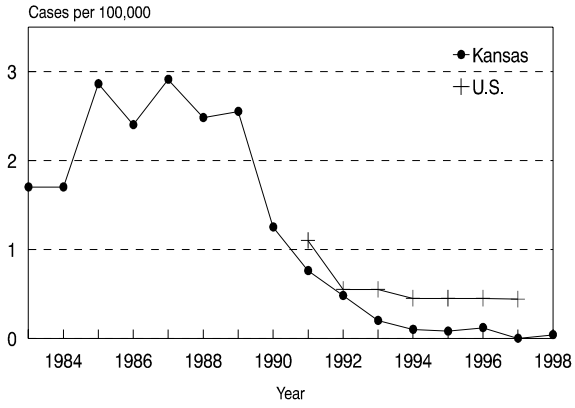
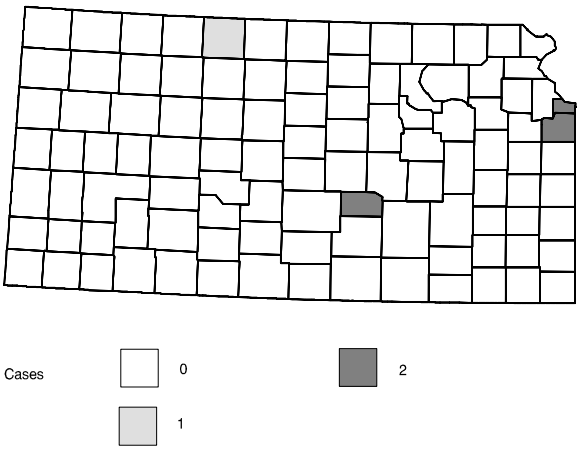
There were no other types of *H. influenzae* cases reported in 1998.

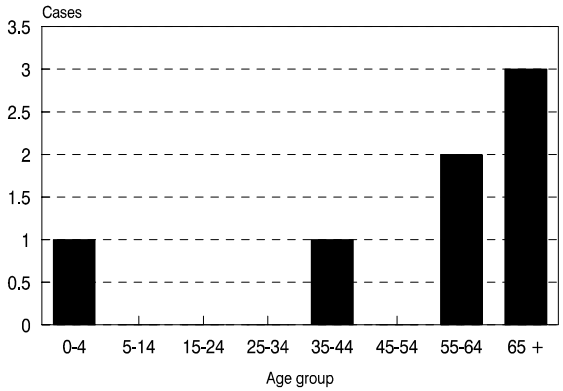
Haemophilus influenzae meningitis rate by year - Kansas, 1983-1998



Haemophilus influenzae, invasive disease cases by county - Kansas, 1998



Haemophilus influenzae, invasive disease cases by age group - Kansas, 1998



HANTAVIRUS PULMONARY SYNDROME

Hantavirus Pulmonary Syndrome (HPS) is seen in the U.S., and is commonly referred to as hantavirus.

It is a febrile illness characterized by bilateral interstitial pulmonary infiltrates and respiratory compromise usually requiring supplemental oxygen and clinically resembling acute respiratory disease syndrome (ARDS). The typical prodrome consists of fever, chills, myalgia, headache, and gastrointestinal symptoms. Typical clinical laboratory findings include hemoconcentration, left shift in the white blood cell count, neutrophilic leukocytosis, severe thrombocytopenia, and circulating immunoblasts. The symptoms may last a few hours to several days. Hantavirus is carried by specific rodents; in the U.S. it is usually carried by deer mice. Mice do not appear ill while carrying the virus. People may become infected by inhaling airborne particles of urine, feces, or saliva from infected rodents. The virus may also be spread by handling infected rodents, their nests, or droppings, and then touching the person's nose, mouth, or eyes. There is no evidence of person-to-person transmission. The incubation period is one to six weeks, usually 2-3 weeks.

Clinical Criteria

An illness characterized by one or more of the following clinical features:

- A febrile illness (i.e., temperature >101.0 °F [>38.3 °C]) characterized by bilateral diffuse interstitial edema that may radiographically resemble ARDS, with respiratory compromise requiring supplemental oxygen, developing within 72 hours of hospitalization, and occurring in a previously healthy person.
- An unexplained respiratory illness resulting in death, with an autopsy examination demonstrating noncardiogenic pulmonary edema without an identifiable cause.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Detection of hantavirus-specific immunoglobulin M or rising titers of hantavirus-specific immunoglobulin G, or
- Detection of hantavirus-specific ribonucleic acid sequence by polymerase chain reaction in clinical specimens, or
- Detection of hantavirus antigen by immunohistochemistry.

Surveillance Case Definition

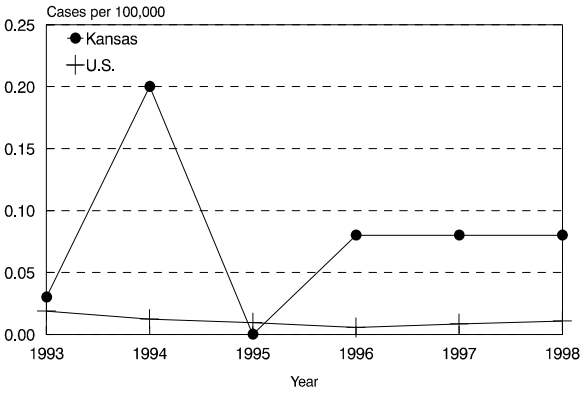
- *Confirmed:* a clinically compatible case that is laboratory confirmed.

Epidemiology and Trends

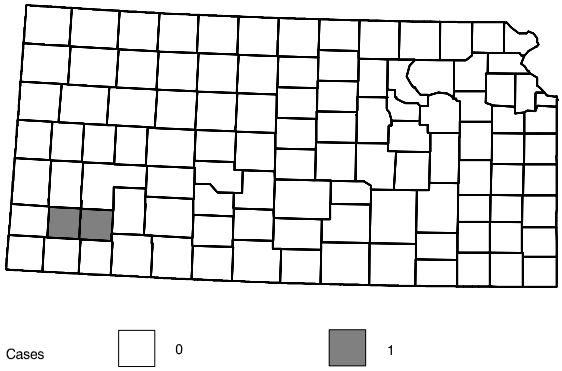
1998 Case Total	2
Kansas rate	0.1 per 100,000
U.S. rate (1998)	<0.1 per 100,000

Since hantavirus was first recognized in the U.S. in 1993, there have been 0-4 cases reported annually in Kansas. In 1998, there were only two hantavirus cases reported with a median age of 38 years. All of the cases have lived, or worked in, southwest Kansas.

Hantavirus rate by year
Kansas, 1993-1998



Hantavirus cases by county
Kansas, 1998



HEPATITIS A

Hepatitis A is caused by an RNA picornavirus and affects the liver. Onset is usually abrupt with fever, malaise, anorexia, nausea, vomiting, and abdominal discomfort, followed within a few days by jaundice. Symptoms appear, on average, one month after exposure; the incubation period is 15 to 50 days. Illness lasts 1-2 weeks to several months (rare) and the length of illness depends on the clinical severity. The disease is most common among school-aged children and young adults. Severity of illness is highly variable and can be milder or asymptomatic in young children. Transmission is person to person by the fecal-oral route. Peak levels of the agent appear in the feces a week or two before symptom onset and diminish rapidly after symptoms appear. In recent years, community-wide cases have accounted for most disease transmission, although common-source outbreaks due to food contaminated by food handlers, contaminated produce, or contaminated water continue to occur. Immunity after infection probably lasts for life.

Gamma globulin (IG) can help prevent hepatitis A infection, and is recommended for people who live in the same house as a person with hepatitis A, for sexual contacts of a person with hepatitis A, and for children in the same day care center with a child with hepatitis A. IG is **NOT** given to casual contacts of a person with hepatitis A because the risk of infection in these situations is extremely small. An inactivated hepatitis A vaccine is available and is recommended for travelers to countries where hepatitis A is a common infection, and for high-risk adults and children in this country. The vaccine has been shown to be safe, immunogenic and efficacious. Protection against clinical hepatitis A may begin in some persons as soon as 14 days after a single dose of vaccine and nearly all have protective antibody by 30 days.

Clinical Criteria

An acute illness with (a) discrete onset of symptoms and (b) jaundice or elevated serum aminotranferase levels.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive.

Surveillance Case Definition

- Confirmed: (a) a case that meets the clinical case definition and is laboratory confirmed ***or***
  (b) a case that meets the clinical case definition and occurs in a person who has an epidemiologic link with a person who has laboratory-confirmed hepatitis A (e.g., household or sexual contact with an infected person during the 15-50 days before the onset of symptoms).

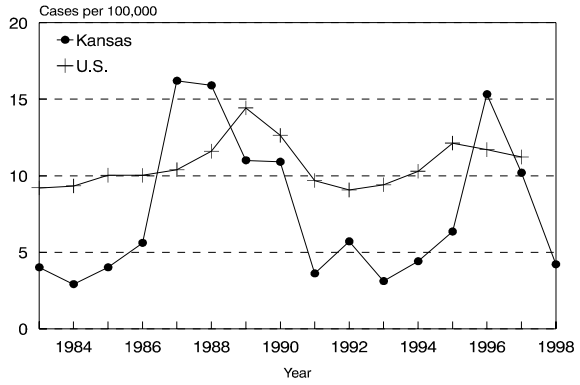
Epidemiology and Trends

1998 Case Total	109
Kansas rate	4.2 per 100,000
U.S. rate (1997)	11.2 per 100,00
Rate by gender	
Female	3.6 per 100,000
Male	4.9 per 100,000
Rate by race/ethnicity	
White	4.0 per 100,000
African-American	2.0 per 100,000
Asian/Pacific Islander	2.3 per 100,000
Native American	12.9 per 100,000
Hispanic	12.8 per 100,000
Rate by geographic area	
Urban	5.9 per 100,000
Rural	2.6 per 100,000

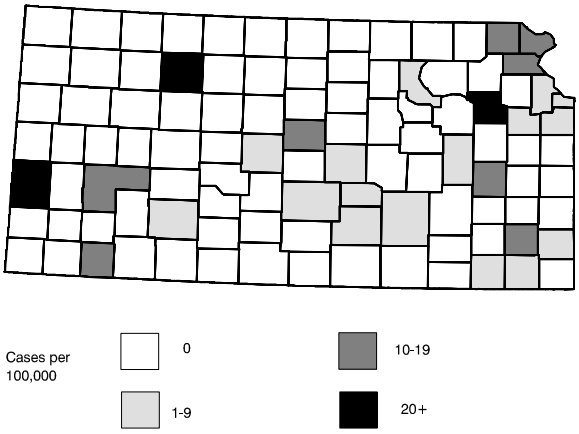
A marked decrease in the total number of hepatitis A cases was reported in 1998, with 109 cases reported from 26 counties. This number represents a 58% decrease compared to the 1997 total (262); the five-year median for 1993-1997 was 161 cases. The cases ranged in age from less than 1 year to 89 years of age; median age was 30 years. The highest incidence occurred in the 15-24 and 25-35 year age group, with rates of 5.9 and 6.2 per 100,000, respectively.

Eighty-six percent of the cases occurred in Whites, 16% in Hispanics, 3% in both African-Americans and Native Americans, and 1% in Asian/Pacific Islanders. About two third of the cases occurred in urban areas. Risk factors identified during the 2-6 weeks prior to illness included contact with a hepatitis A case (24%) and travel to foreign countries (13%). Individuals may have had more than one risk factor.

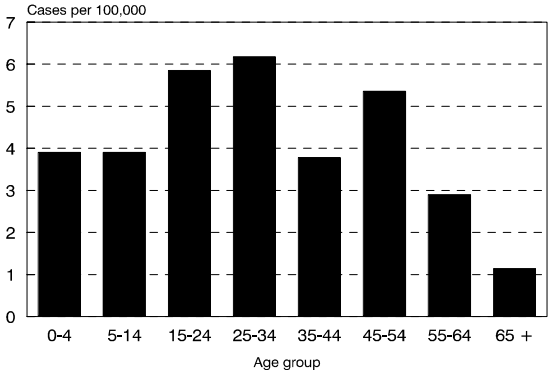
Hepatitis A rate by year
Kansas, 1983-1998



Hepatitis A rate by county
Kansas, 1998



Hepatitis A rate by age group
Kansas, 1998



HEPATITIS B

Hepatitis B (HBV) is a virus that affects the liver. About half of the people who are infected will have symptoms, although many people think they have the "flu" and do not attribute their symptoms to HBV infection. The usual signs and symptoms of HBV include fever, fatigue, dark urine, muscle or joint pain, loss of appetite, nausea, vomiting, or jaundice (yellow skin and sclera). Only a small portion of infections are clinically recognized; less than 10% of children and 30-50% of adults with acute infection will have jaundice as a symptom. After infection, about 90% of people recover, develop antibodies to the virus, and cannot spread the disease to others. Five to 10 percent cannot clear the virus from their systems and become chronic carriers. Chronic carriers will usually have ongoing inflammation of the liver, continue to be infectious to others, and have an increased risk of developing severe liver disease such as cirrhosis or liver cancer. The incubation period is usually 45-180 days, average 60-90 days. Transmission occurs by percutaneous and permucosal exposure to infective body fluids (i.e., blood, saliva, semen, and vaginal fluids). All persons who are hepatitis B surface antigen (HBsAg) positive are potentially infectious.

Hepatitis B can be prevented by vaccination. Hepatitis B vaccine is recommended for all children at birth, 1-2 and 6-18 months of age or, if not previously received, at 11-12 years of age. Hepatitis B vaccine is also recommended for persons in the following high risk groups: persons with occupational risk, clients and staff of institutions for the developmentally disabled; hemodialysis patients; recipients of certain blood products; household and sexual partners of HbsAg carriers; certain international travelers; injecting drug users; sexually active persons with multiple partners; and inmates of long-term facilities.

Clinical Criteria

An acute illness with (a) discrete onset of symptoms and (b) jaundice or elevated serum aminotranferase levels.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Immunoglobulin (IgM) antibody to hepatitis B core antigen (anti-HBc) positive (if done) ***or*** hepatitis B surface antigen (HBsAg) positive.
- IgM anti-HAV negative (if done).

Surveillance Case Definition

- Confirmed: a case that meets the clinical case definition and is laboratory confirmed.

Comment

- Persons who have chronic hepatitis or persons identified as HBsAg positive should not be reported as having acute viral hepatitis B unless they have evidence of an acute illness compatible with viral hepatitis B (with the exception of perinatal hepatitis B infection) or hepatitis B infection during pregnancy.

Epidemiology and Trends

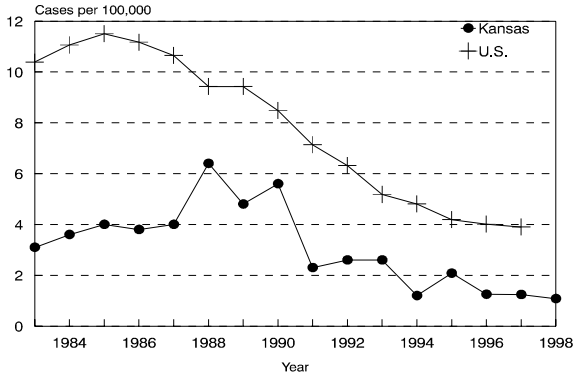
1998 Case Total	28
Kansas rate	1.1 per 100,000
U.S. rate (1997)	3.9 per 100,000
Cases by gender	
Female	12
Male	16
Cases by geographic area	
Urban	8
Rural	20

There were 28 confirmed acute hepatitis B cases reported in 1998, a 13% decrease as compared to the 32 cases in 1997; the five-year median for 1993-1997 was 34 cases. The cases ranged in age from 13 to 79 years of age. The median age was 35 years. Sixteen cases (57%) were males. The highest incidence of hepatitis B occurred in the 25-34 year age group. Seventy-one percent of the cases were reported from rural areas.

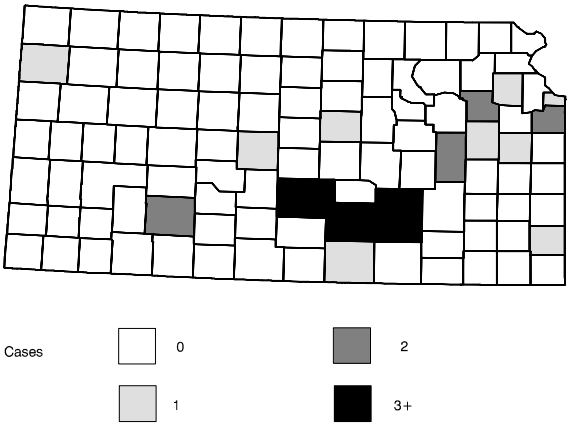
Since only acute cases are reportable, these numbers are not indicative of the burden of chronic hepatitis B nor of new, asymptomatic infections.

Risk factors identified from 2 weeks to 6 months prior to illness included having more than 2 sexual partners (43%), injection drug use (14%), contact with a hepatitis B case (11%), and tattoos (11%). Individuals may have had more than one risk factor.

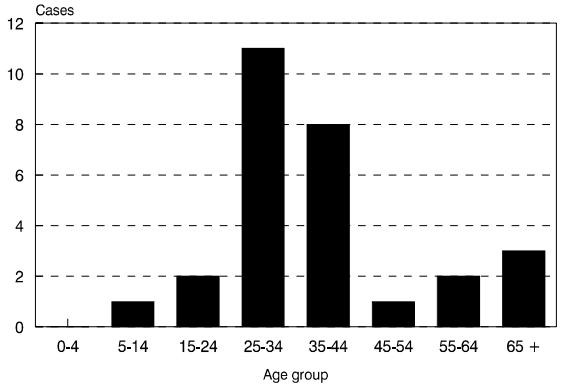
Hepatitis B rate by year
Kansas, 1983-1998



Hepatitis B cases by county
Kansas, 1998



Hepatitis B cases by age group
Kansas, 1998



HEPATITIS C/ *non-A, non-B*

Hepatitis C is a liver disease caused by a flavavirus. It is an illness with insidious onset of symptoms, including anorexia, abdominal discomfort, nausea, vomiting, and progressing to jaundice less frequently than hepatitis B (75% of infected individuals do not have jaundice). Chronic infection is common (>60% of cases) and can be symptomatic or asymptomatic. Prior to blood donor screening for this infection, hepatitis C occurred most often in people who had received blood transfusions. More recently, hemodyalisis patients and persons who have shared needles have been most affected. The incubation period ranges from 2 weeks to 6 months; most commonly 6-9 weeks. It is spread by exposure to blood from an infected person, such as through a blood transfusion or sharing needles. The risk of sexual transmission has not been thoroughly studied but appears to be less than 5%, similar to perinatal infection.

Up to 20% of acute hepatitis cases have no detectable antibody to hepatitis C virus (anti-HCV) when reported and are classified as non-A, non-B hepatitis. Some (5%-10%) have not yet seroconverted to hepatitis C and others (5-10%) remain negative even with prolonged follow-up.

Clinical Criteria

An acute illness with (a) discrete onset of symptoms and (b) jaundice or elevated serum aminotranferase levels

Laboratory Criteria for Confirmation for Surveillance Purposes

- Serum aminotranferase levels > 2.5 times the upper limit of normal, ***and***
- Immunoglobulin M (IgM) anti-HAV negative ***and***
- IgM anti-HBc negative, ***and***

For Hepatitis C:

- Antibody to hepatitis C virus (anti-HCV) positive, **verified by a supplemental test**; supplemental tests include RIBA (Recombinant ImmunoBlot Assay), or RT-PCR (Reverse Treanscriptase Polymerase Chain Reaction).

For Non-A, Non-B Hepatitis:

- Anti-HCV negative (if done).

Surveillance Case Definition

- Confirmed: a case that meets the clinical case definition and is laboratory confirmed.

Comment

- Available serologic tests for anti-HCV do not distinguish between acute and chronic (current and past) infection. Thus, other causes of acute hepatitis should be excluded for anti-HCV positive patients who have an acute illness compatible with viral hepatitis.

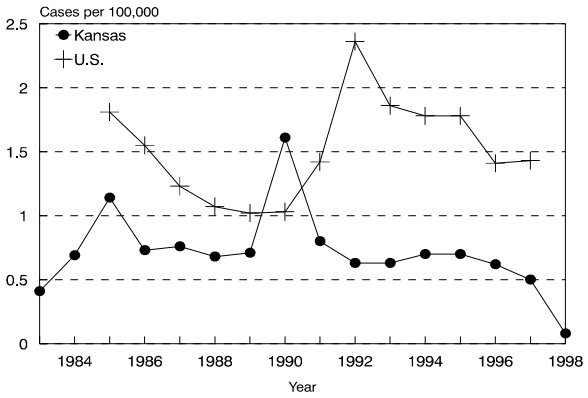
Epidemiology and Trends

1998 Case Total	2
Kansas rate	0.1 per 100,000
U.S. rate (1997)	1.4 per 100,000

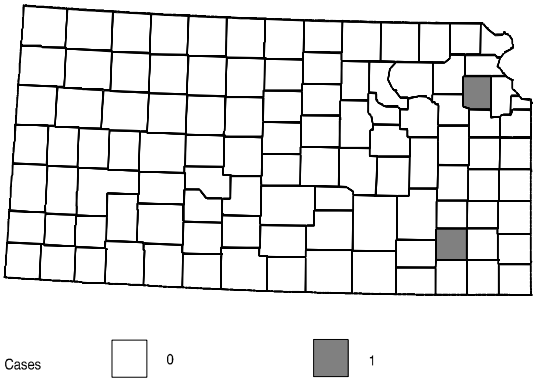
In Kansas, there were only two confirmed acute hepatitis C cases reported in 1998 compared to 13 cases reported in 1997. This decrease in reported cases of acute viral hepatitis C reflects a change in case definition, which now requires a supplemental verification test. A similar decrease has also been seen nationally.

Since only acute cases are reportable, these numbers are not indicative of the burden of chronic hepatitis C infection nor of new, asymptomatic infections.

Hepatitis C rate by year of report
Kansas, 1983-1998



Hepatitis C cases by county
Kansas, 1998



INFLUENZA

Influenza, more commonly called "flu," is a highly contagious viral infection of the nose, throat, bronchial tubes and lungs. There are two main types of virus - A and B. Each type includes many different strains which tend to change each year. Influenza occurs most often in the winter months. Illnesses resembling influenza may occur in the summer months but they are usually due to other viruses. Typical flu symptoms include headache, fever, chills, cough, and body aches. Intestinal symptoms are uncommon and are not included in the definition of a clinical case. Although most people are ill for only a few days, some people have a more serious illness, such as pneumonia, and may need to be hospitalized. Thousands of people die each year in the United States from the flu or related complications. Anyone can get influenza, but it is most serious in the elderly, people with chronic illnesses such as cancer, emphysema or diabetes, or with weak immune systems. The incubation period is short, usually 1-3 days. Influenza is highly contagious and is easily transmitted through contact with droplets from the nose and throat of an infected person during coughing and sneezing.

Influenza vaccinations are available to reduce the likelihood of infection or lessen the severity of the disease if it does occur. Immunity to one strain of the influenza virus does not confer immunity to other strains. Consequently, the three strains included in the vaccine vary from year to year depending on strains expected to be in circulation. Annual vaccination for influenza is also necessary because immunity declines rapidly over time. People should be vaccinated before influenza is seen in the community, which, in the United States, is from November through March. Thus, beginning each September, influenza vaccine should be offered to high-risk individuals when seen for routine care or when hospitalized. Organized vaccination campaigns are usually held from October through mid-November.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of influenza virus from a throat specimen.

Surveillance Case Definition

- Confirmed: a case that meets the clinical case definition and is laboratory confirmed.

Comment

- **Influenza strains contained in the 1999-2000 vaccine:** The trivalent influenza vaccine prepared for the 1999-2000 season will include A/Beijing/262/95-like (H1N1), A/Sydney/5/97-like (H3N2), and B/Beijing/184/93-like hemagglutinin antigens. For the B/Beijing/184/93-like antigen, U.S. manufacturers will use the antigenically equivalent B/Yamanashi/166/98 virus because of its growth properties and because it is representative of currently circulating B viruses.

Epidemiology and Trends

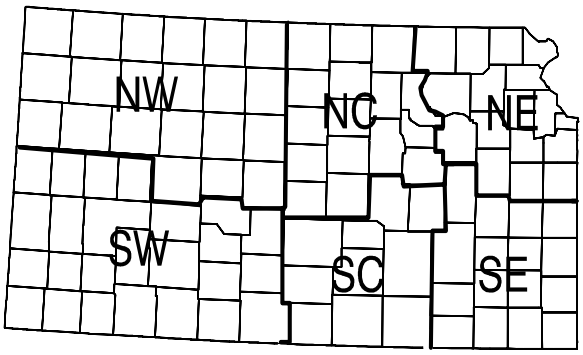
During the 1998-1999 influenza season, the trends observed in Kansas were reflected in much of the U.S., with increasing flu-like activity occurring in late December and peaking during late January and early March, 1999.

There were 150 specimens tested at the Kansas Health and Environmental Laboratory with 101 testing positive as of March 24, 1999. Of the 101 positive specimens, 71 (70%) were type A, with 41 subtyped as H3N2; 30 (30%) were type B, with 18 subtyped as BE93.

As in previous years, during this influenza season, 92% (314/341)of deaths due to pneumonia/influenza were among people aged 65 and over.

Test results* for influenza	
Analyzed for influenza	**150**
Influenza A (+)	**71**
Typed (all H3N2)	41
Fluorescent antibody (+)	30
Influenza B (+)	**30**
Typed (all BE93)	18
Fluorescent antibody (+)	12
Influenza (-)	**40**
Other viruses	**4**
Adenovirus	3
Herpes simplex virus	1
Parainfluenza	0
Isolation/ID not completed	**5**

Geographic regions in Kansas



Geographic Area (# Spec. analyzed)	**Pos A N (%)**	**Pos B N (%)**
NE (56)	19 (34%)	7 (13%)
NC (17)	10 (59%)	7 (41%)
NW (0)	0	0
SE (9)	2 (22%)	3 (33%)
SC (53)	38 (72%)	10 (19%)
SW (13)	2 (15%)	3 (23%)
Total (150)	71 (47%)	30 (20%)

Age group	**Specimens analyzed**	**Pos A N (%)**	**Pos B N (%)**
< 12	46	27 (59%)	12 (26%)
12 - 19	30	13 (43%)	9 (30%)
20 - 39	54	20 (37%)	8 (15%)
> 39	20	11 (55%)	1 (5%)
Total	150	71 (47%)	30 (20%)

***** Only results from specimens submitted to the Kansas Health and Environment Laboratory are presented.

PEDIATRIC LEAD POISONING

Although not an infectious disease, lead poisoning is one of the most common and preventable pediatric health problems affecting Kansas children. In young children, lead levels above 10 μg/dL can affect the developing nervous system, resulting in delayed development, decreased IQ, and learning and behavior problems. Higher lead levels (greater than 20 μg/dL) can have adverse effects on the kidneys and blood-producing organs as well as the digestive and reproductive systems. Very high blood lead levels (greater than 70 μg/dL) can cause devastating health consequences, including seizures, coma, and death. The developing fetus of a pregnant woman is very susceptible to the lead exposure of the mother both during and before pregnancy. Children under six most often become lead-poisoned by ingesting lead contaminated dust through the frequent hand-to-mouth activity typical of this age group such as thumb-sucking, or chewing on toys, pacifiers and other objects that have been in contact with dust and soil. Lead-based paint in homes built before 1978 is the most common source of lead exposure for children when painted surfaces are peeling, deteriorating, or disturbed during renovation or remodeling. Other potential sources of lead poisoning include water from leaded pipes, occupational or hobby exposure of the parent, soil contaminated from previous industry and leaded gas emissions, and food contaminated by imported dishes or cans containing lead. Children are considered to be at high risk for lead poisoning if they:

- Live in or regularly visit a house that was built before 1950.
- Live in or regularly visit a house built before 1978 with recent or ongoing renovations or remodeling (within the last six months).
- Have a sibling or playmate who has or did have lead poisoning.

The common warning signs of lead poisoning such as headache, stomachache, fatigue, loss of appetite or sleep disturbance, can easily be mistaken for common childhood problems. Most children have no symptoms of lead poisoning. A blood lead test is the only way to tell if a child has an elevated blood level and is recommended as part of standard pediatric check-ups. Blood lead testing is mandated as part of the Kan Be Healthy health assessment for children under six receiving Medicaid benefits.

Based on 1997 CDC guidelines, Kansas has a universal screening recommendation. Using a blood lead test, screen all children at 12 and 24 months of age, and screen all children from 36-72 months of age who have not been screened previously. High risk children should have a first blood lead test at six months of age.

Community prevention activities should be triggered by blood lead levels $\geq$10 μg/dL. All children with blood lead levels $\geq$15 μg/dL should receive individual case management, including nutritional and educational interventions and more frequent screening. Medical evaluation and environmental investigation and remediation should be done for all children with blood levels > 20 μg/dL.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Venous blood lead level $\geq$10 µg/dL, ***or***
- Capillary blood lead results $\geq$10 µg/dL confirmed by retesting with venous blood.

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed.

Epidemiology and Trends

1998 Case Total	892
Kansas rate (age-specific)	352.5 per 100,000
U.S. rate (1997)	N/A

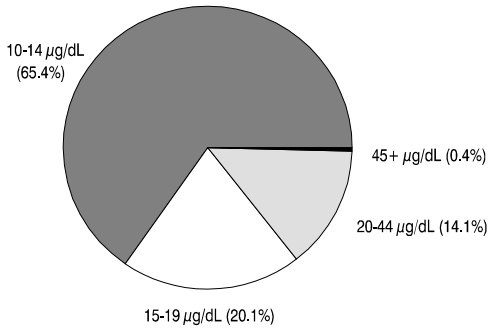
Rate by gender	
Female	311.9 per 100,000
Male	377.1 per 100,000

Rate by geographic area	
Urban	339.8 per 100,000
Rural	360.6 per 100,000

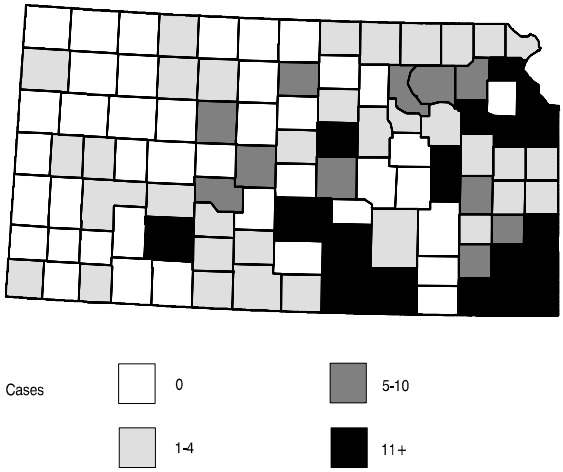
After a 33% decrease in 1997, the number of pediatric lead poisoning cases reported increased by 15% from 779 cases in 1997 to 892 cases in 1998. This increase may be due to an increase in the level of screening, screening of a greater proportion of high risk children, or an actual increase in the incidence of elevated blood levels among Kansas children. Cases reported by the Kansas Health and Environmental Laboratory (children screened by Local Health Departments) have decreased by 18% reflecting a documented 13% decrease in the total number of children screened by KHEL. Results on both positive and negative specimens analyzed by KHEL are available, with a positive rate of 7.6%. Cases reported by private laboratories have increased by 39%. In 1996 the ratio of cases reported by KHEL to private labs was 1:1. In 1998, the ratio was 1:2. Since only positive results are available from private laboratories, it is not possible to assess positivity rates of this population. Of the cases reported, 619 (69%) were from private laboratories.

Reported cases have remained consistent in the distribution of percentages of cases for each value range for the years 1994-1998. In 1998, 309 cases (35%) had a blood lead level $\geq$15 μg/dL, a level that might warrant an environmental risk assessment. The pediatric cases ranged in age from 1 to 71 months. The median age was 27 months. The 12-23 month age group accounted for 32% of the reported cases and represented the highest incidence of pediatric poisoning. 55% (490) of the reported cases were males. Distribution of cases by race/ethnicity was not available. The ratio of urban to rural was about 1:1. *Differences in the number of cases by geographic area may be attributable to variations in screening practices.*

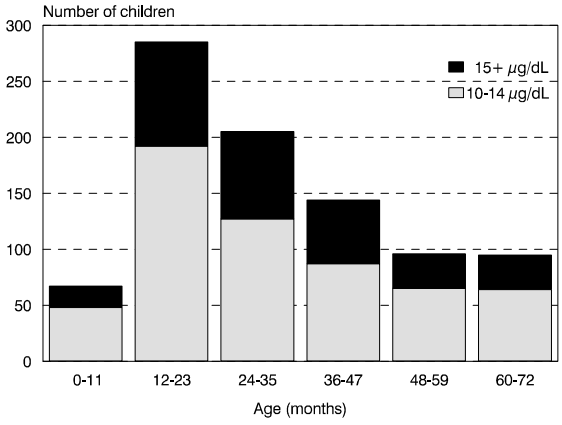
Positive Blood lead results for children 0 to 72 months
Kansas, 1998



Pediatric lead poisoning cases by county
Kansas, 1998



Pediatric lead poisoning cases by age group
Kansas, 1998



LEGIONELLOSIS

Legionellosis is a bacterial disease caused by Gram-negative bacilli, *Legionellae*. Legionellosis is associated with two clinically and epidemiologically distinct illnesses: Legionnaries disease, which is characterized by fever, myalgia, cough, and pneumonia and Pontiac fever, a milder illness without pneumonia. It is called legionellosis because of an outbreak of this disease in Philadelphia in 1976, largely among people attending a state convention of the American Legion. Subsequently, the bacterium causing the illness was named *Legionella pneumophila*. The incubation period is 2-10 days, most often 5-6 days for Legionnaire's disease; 24-48 hours for Pontiac fever. *Legionella spp.* are widely distributed in the environment. They have been found in creeks and ponds, hot and cold water taps, hot water tanks, water in air conditioning cooling towers and evaporative condensers, and soil at excavation sites. The disease appears to be spread through the air from a soil or water source; other modes are possible, but none has been proven conclusively. All studies to date have shown that person-to-person spread does not occur and underlying illness often plays a role. Most cases have been sporadic occurrences, but outbreaks do occur.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of Legionella from respiratory secretions, lung tissue, pleural fluid, or other normally sterile fluids, ***or***
- Demonstration of a fourfold or greater rise in the reciprocal immunofluorescence antibody (IFA) titer to $\geq$128 against *Legionella pneumophila* serogroup 1 between paired acute-and convalescent-phase serum specimens, ***or***
- Detection of *L. pneumophila* serogroup 1 in respiratory secretions, lung tissue, or pleural fluid by direct fluorescent antibody testing, ***or***
- Demonstration of *L. pneumophila* serogroup 1 antigens in urine by radioimmunoassay or enzyme-linked immunosorbent assay.

Surveillance Case Definition

- Confirmed: a clinically compatible case that is laboratory confirmed.

Comment

- The previously used category of "probable case," which was based on a single IFA titer, lacks specificity for surveillance and is no longer used.

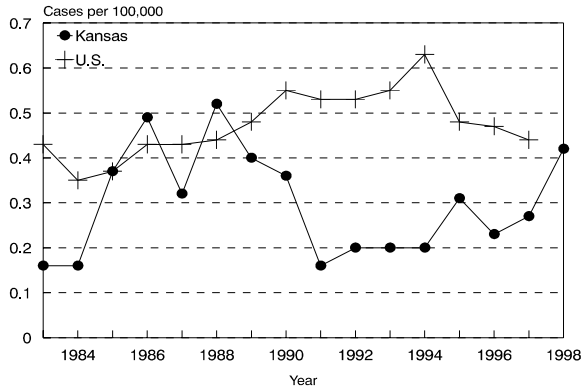
Epidemiology and Trends

1998 Case Total	11
Kansas rate	0.4 per 100,000
U.S. rate (1997)	0.4 per 100,000

Cases by gender	
Female	6
Male	5

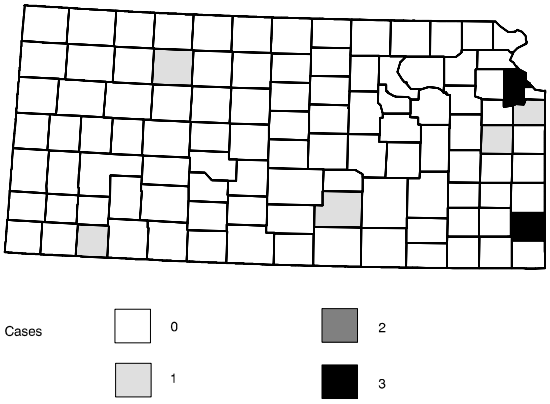
Cases by geographic area	
Urban	2
Rural	9

Legionellosis rate by year
Kansas, 1983-1998



In 1998, there were a total of 11 confirmed cases of Legionnaires Disease in Kansas, an increase from the last year's cases (7). Cases appeared to be sporadic, no outbreaks were reported. The cases ranged in age from 16 to 88 years of age. The median age was 50 years. The highest incidence occurred in the 65+ year age group. Six of the cases were female. Nine of the cases were reported from rural areas.

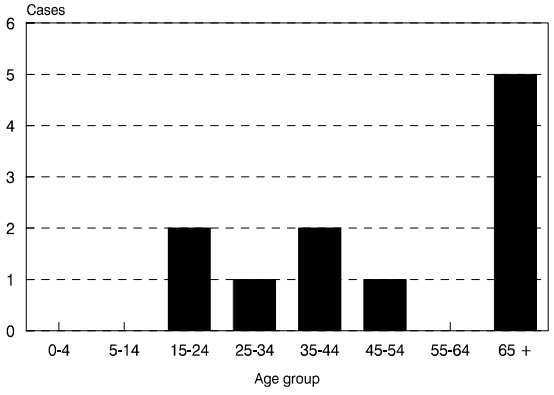
Legionellosis cases by county
Kansas, 1998



Legionellosis occurs most frequently with increasing ages, especially in patients who smoke and in those with diabetes mellitus, chronic lung disease, renal disease or malignancy; and in the immunocompromised, particularly those who are receiving corticosteroids or who have had an organ transplant. In 1998, major illnesses or underlying conditions reported were:

Cancer	0 (0%)
Transplant	0 (0%)
Renal dialysis	0 (0%)
Systemic Corticoseroids	1 (9%)
Other immuno-suppressants	2 (18%)
Diabetes	1 (9%)
Smoker	1 (9%)

Legionellosis cases by age group
Kansas, 1998



LYME DISEASE

Lyme disease is a bacterial infection caused by the spirochete, *Borrelia burgdorferi*. The first cluster of disease cases associated with this bacteria was discovered near Lyme, Connecticut. Lyme disease may cause symptoms affecting skin, nervous system, heart and/or joints of an individual, but it is almost never fatal. A systemic, tickborne disease, it is often multistage. The best clinical marker for the disease is the initial skin lesion (i.e., erythema migrans [EM]) that occurs in 60%-80% of patients 3 to 32 days after tick exposure. However, the early stages of the illness may be asymptomatic, and the patient may present with later manifestations. The infection is transmitted by very small ticks, the most important being the deer tick (*Ixodes scapularis*) and the western black-legged tick (*Ixodes pacificus*). Transmission does not occur until the tick has been attached for 24 hours or more.

A Lyme disease vaccine is recommended for persons exposed in high risk areas (counties where *Ixodes* populations are established, prevalence of infection is high and which are in the top 10% of counties reporting human cases; limited to the Northeast U.S. and parts of Minnesota and Wisconsin). Kansas is in a minimal to low risk area, so vaccine is not recommended. A vaccine is licensed for non-pregnant persons aged 15-70 years.

Clinical Criteria

Erythema Migrans (EM)

EM is defined as a skin lesion that typically begins as a red macule or papule and expands over a period of days to weeks to form a large round lesion, often with partial central clearing. A single primary lesion must reach $\geq$ 5 cm in size. Secondary lesions also may occur. Annular erythematous lesions occurring within several hours of a tick bite represent hypersensitivity reactions and are not EM. For most patients, the expanding EM lesion is accompanied by other acute symptoms, particularly fatigue, fever, headache, mildly stiff neck, arthralgia, or myalgia. These symptoms are typically intermittent. The diagnosis of EM must be made by a physician. Laboratory confirmation is recommended for persons with no known exposure.

Late manifestations

1. *Musculosketal system*
   Recurrent, brief attacks (weeks or months) of objective joint swelling in one or a few joints. Manifestations not considered as criteria for diagnosis include chronic progressive arthritis not preceded by brief attacks and chronic symmetrical polyarthritis. Additionally, arthralgia, myalgia, or fibromyalgia syndromes alone are not criteria for musculoskeletal involvement.

2. *Nervous system*
   Any of the following, alone or in combination: lymphocytic meningitis; cranial neuritis, particularly facial palsy (may be bilateral); radiculoneuropathy; or, rarely, encephalomyelitis. Encephalomyelitis must be confirmed by demonstration of antibody production against *B. burgdorferi* in the CSF, evidenced by a higher titer of antibody in CSF than in serum. Headache, fatigue, paresthesia, or mildly stiff neck alone are not criteria for neurologic involvement.

3. *Cardiovascular system*
   Acute onset of high-grade (2° or 3°) atrioventricular conduction defects that resolve in days to weeks and are sometimes associated with myocarditis. Palpitations, bardycardia, bundle branch block, or myocarditis alone are not criteria for cardiovascular involvement.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *Borrelia burgdorferi* from a clinical specimen ***or***
- Demonstration diagnostic immunoglobulin M or immunoglobulin G antibodies to *B burgdorferi* in serum or cerebrospinal fluid (CSF). A two-test approach using a sensitive enzyme immunoassay or immunofluorescence antibody followed by Western blot is recommended.

Surveillance Case Definition

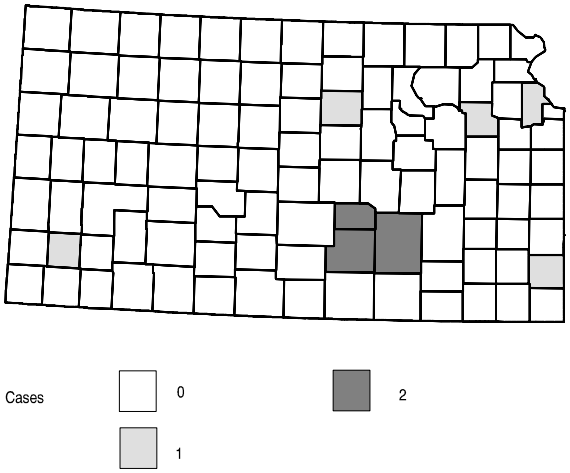
- Confirmed: a) a case with EM ***or***
  b) a case with at least one late manifestation that is laboratory confirmed.

Epidemiology and Trends

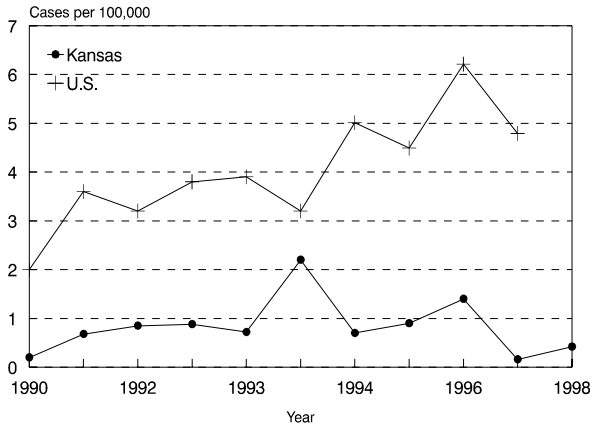
1998 Case Total	11
Kansas rate	0.4 per 100,000
U.S. rate (1997)	4.8 per 100,000
Connecticut rate (1997) (highest state rate in U.S.)	70 per 100,000

The spirochete (*Borrelia burgdorferi*) that causes Lyme disease has not yet been isolated by culture in Kansas. In 1998, there were 11 cases of Lyme disease reported. The cases ranged in age from 12-74 years of age (median=45). Six of the cases were male. Eight cases were reported from rural areas. Seven (64%) cases reported Kansas as a site of likely exposure; four reported out of state. Among 11 cases, 2 cases (18%) had EM, 7 cases (64%) had rheumatic signs, one case (9%) had neurologic signs and no case reported having cardiac signs.

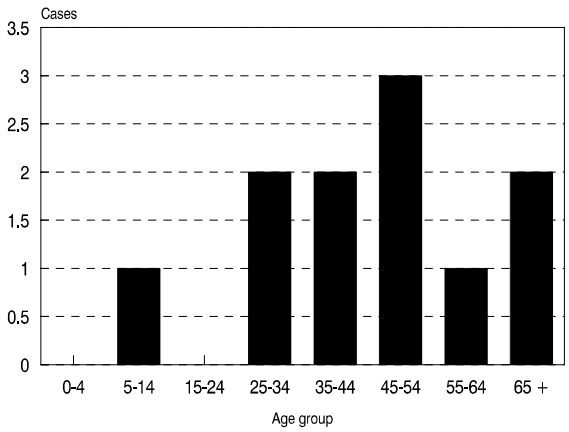
Lyme disease cases by county
Kansas, 1998



Lyme disease rate by year
Kansas, 1988-1998



Lyme disease cases by age group
Kansas, 1998



MALARIA

Malaria is a parasitic infection caused by *Plasmodium vivax, P. ovale, P. malariae,* or *P. falciparum*. Signs and symptoms are variable; however, most patients experience fever. In addition to fever, commonly associated symptoms include headache, back pain, chills, sweats, myalgia, nausea, vomiting, diarrhea, and cough. Untreated *P. falciparum* infection can lead to coma, renal failure, pulmonary edema, and death. The diagnosis of malaria should be considered for any person who has these symptoms and who has traveled to an area in which malaria is endemic. Asymptomatic parasitemia can occur among persons who have been long-term residents of areas in which malaria is endemic. The time between the infective bite and the appearance of clinical symptoms is 7-14 days for *P. falciparum*, 8-14 days for *P. vivax* and *P. ovale*, and 7-30 days for *P. malarieae*. With some strains of *P. vivax* and *P. ovale* from temperate areas, there may be a protracted incubation period of 8-10 months or longer. Malaria is spread through the bite of an infective female *Anopheles spp.* mosquito. Most species feed at dusk an during early night hours; some important vectors have biting peaks around midnight or the early hours of the morning.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Demonstration of malaria parasites in blood films.

Surveillance Case Definition

- *Confirmed:* an episode of microscopically confirmed malaria parasitemia in any person (symptomatic or asymptomatic) diagnosed in the United States, regardless of whether the person experienced previous episodes of malaria while outside the country.

Comment

- A subsequent attack experienced by the same person but caused by a different *Plasmodium spp.* is counted as an additional case. A subsequent attack experienced by the same person and caused by the same species in the United States may indicate a relapsing infection or treatment failure caused by drug resistance.

Epidemiology and Trends

1998 Case Total	10
Kansas rate	0.4 per 100,000
U.S. rate (1997)	0.8 per 100,000

Cases by gender	
Female	2
Male	8

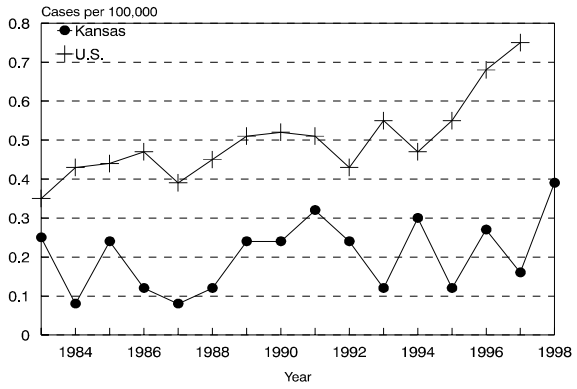
Cases by geographic area	
Urban	5
Rural	5

In 1998, there were 10 cases of malaria reported. The cases in age ranged from 16 to 48 year with a median age of 32. The majority of the cases (8) were males.

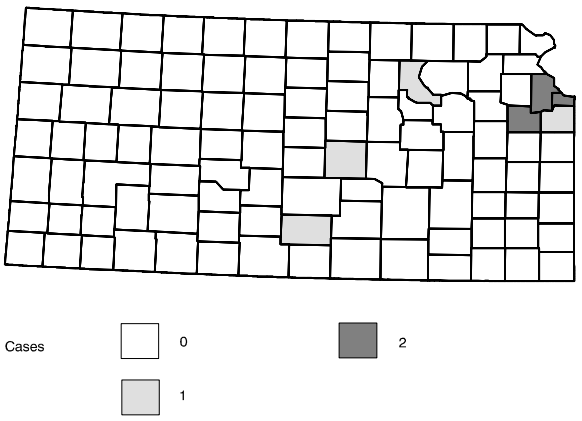
All reported cases had traveled to a foreign country in the past four years; 5 were foreign nationals and 5 were U.S. citizens. Cases had been in the following geographic areas: Honduras (4), Ghana (2), South Korea (2), Ethiopia (1), Guatemala (1), Kenya (1), New Guinea (1), Nigeria (1), Trinidad (1), Zambia (1), Zimbabwe (1); individuals may have traveled to more than one county.

Eighty percent of isolates were speciated. The following species of malaria were identified in cases: *P. vivax* (7), *P. falciparum* (1), and undetermined (2). Six cases had taken malaria prophylaxis with chloroquine (2), chloroquine and primaquine (1), mefloquine (1), meclazine (1), and fansidar (1).

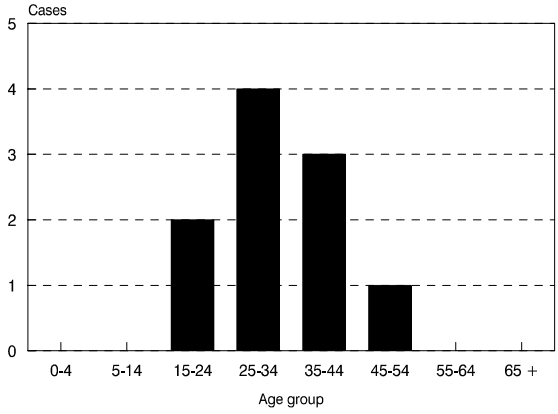
Malaria rate by year
Kansas, 1983-1998



Malaria cases by county
Kansas, 1998



Malaria cases by age group
Kansas, 1998



MENINGITIS, BACTERIAL
(non-meningococcal, non-*Haemophilus influenzae* type B)

Bacterial meningitis is a generic term defined as inflammation of the membranes of the spinal cord or brain caused by bacteria that reach the meninges via blood or lymph through trauma, or from adjacent body structures (e.g. sinuses, mastoid cells). For the purpose of this document bacterial meningitis is defined as a group of diseases characterized by infection of the meninges caused by a bacteria other than *Neisseria meningitidis* or *Haemophilus influenzae* type b, and excludes aseptic meningitis.[01] Symptoms can include fever, headache, stiff neck, vomiting, and red rash. The incubation period ranges from 2 to 10 days. Mode of transmission is by direct person-to-person contact, including respiratory droplets from nose and throat of infected people. No post-exposure prophylaxis of contacts is generally recommended.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation and identification of a bacterial pathogen from the CSF or blood.

Surveillance Case Definition

- *Confirmed:* a clinically compatible case that is laboratory confirmed or has a positive blood culture.

Comment

- Kansas laws require that isolates be sent to Kansas Health and Environmental Laboratory for serotyping.

[01] Viral (aseptic) meningitis is no longer reportable in Kansas.

Epidemiology and Trends

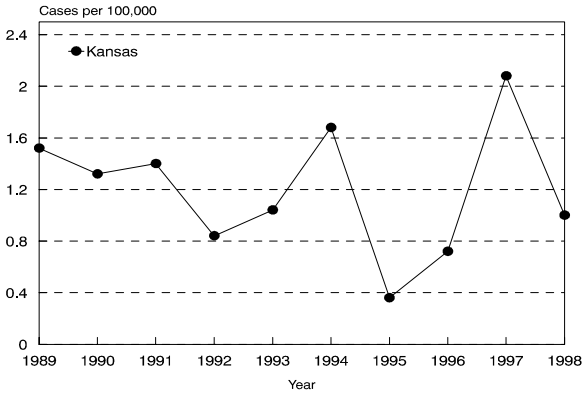
1998 Case Total	25
Kansas rate	1.0 per 100,000
U.S. rate	N/A

Cases by gender	
Female	8
Male	17

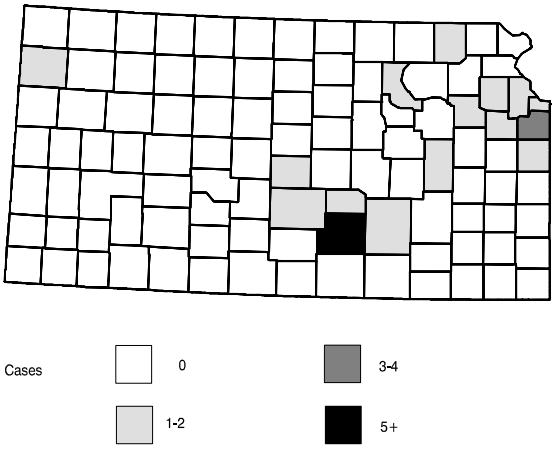
Cases by geographic area	
Urban	12
Rural	13

In 1998, there were 25 bacterial meningitis cases reported. The cases ranged in age from less than 1 year to 96 years; median was 33 years. About two third of the cases occurred in males (17). The ratio of urban (12) to rural (13) was about one to one. 72% of isolates were speciated. The following species of bacteria were identified in cases: *Streptococcus pneumoniae* (13), group A streptococcus (1), staphylococcus epidermis (1), *Bacillus fragilis* (1) and other (3).

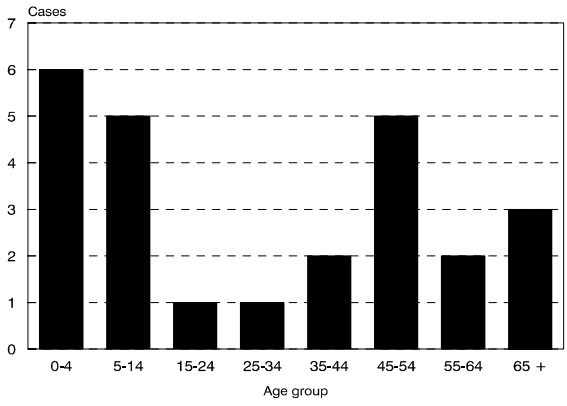
Bacterial Meningitis rate by year
Kansas, 1989-1998



Bacterial Meningitis cases by county
Kansas, 1998



Bacterial Meningitis cases by age group
Kansas, 1998



MENINGOCOCCAL DISEASE

Meningococcal disease is an acute bacterial disease caused by *Neisseria meningitidis*, a Gram- negative diplococcus. The most common serogroups of *N. meningitidis* in the U.S. are B, C, W-135, and Y. Late winter to early spring is the peak season for infection, but it can occur at any time of the year. With early diagnosis and appropriate treatment, the fatality rate of meningococcal meningitis is about 10%. The disease manifests most commonly as meningitis and/or meningococcemia that may progress rapidly to purpura fulminans, shock, and death. The disease is characterized by sudden onset with fever, intense headache, nausea and often vomiting, and stiff neck. Up to 5%-10% of populations may carry *N. meningitidis* in the nasopharynx without developing invasive disease, while a few develop bacteremia, sepsis, meningitis, or pneumonia. The incubation period ranges from two to 10 days, usually three to four days. Transmission of *N. meningitidis* is from person to person by direct contact with respiratory droplets from the nose and throat of infected people. A vaccine is available for use in specified outbreaks if A, C, Y or W-135 are implicated. There is no vaccine for serogroup B. Chemoprophylaxis is used with close contacts of cases (e.g., household members, intimate contacts, health care personnel performing mouth-to-mouth resuscitation, day care center play-mates). No chemoprophylaxis is recommended for less intimate contacts (e.g., school mates, health care workers with minimal contact, and etc.) except during an outbreak or in a child care center.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *Neisseria meningitidis* from a normally sterile site (e.g., blood or cerebrospinal fluid [CSF] or, joint, pleural, or pericardial fluid).

Surveillance Case Definition

- *Confirmed*: a clinically compatible case that is laboratory confirmed.

- *Probable*: a case with a positive antigen test in CSF or clinical purpura fulminans in the absence of a positive blood culture.

Comment

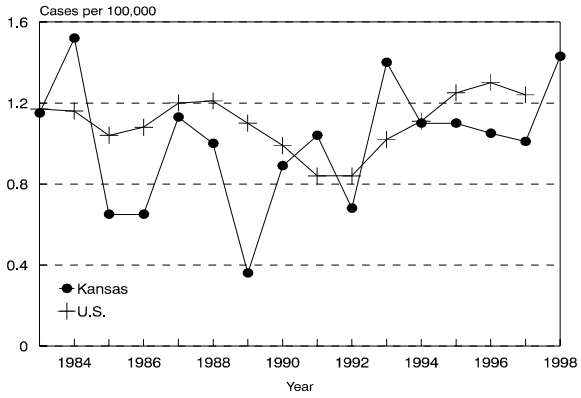
- Positive antigen test results from urine or serum samples are unreliable for diagnosing meningococcal disease.

Epidemiology and Trends

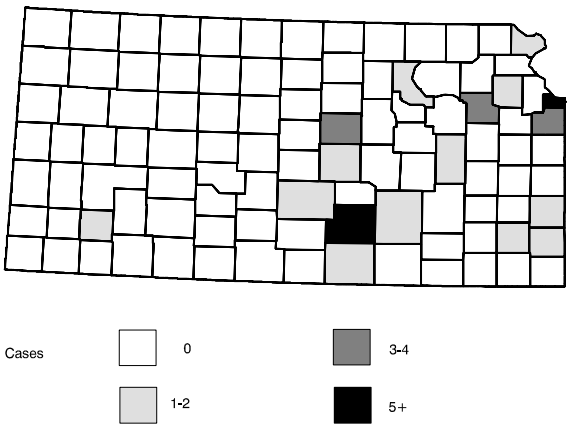
1998 Case Total	37
Kansas rate	1.4 per 100,000
U.S. rate (1997)	1.2 per 100,000
Cases by gender	
Female	21
Male	16
Cases by geographic area	
Urban	20
Rural	17

Thirty-seven meningococcal meningitis were reported during 1998, similar to the number of cases reported in recent years. These were sporadic cases; no outbreaks were detected. The cases ranged in age from less than 1 to 93 years of age. The median age was 41 years. There is a bimodal age distribution, with those less than 5 and those over 65 years at the peaks of the affected ages. Twenty (54%) of the cases were reported from urban areas and 21 (57%) cases were female. Serogroups of meningococcal isolates from the cases were Y (15), B (7), and C (4).

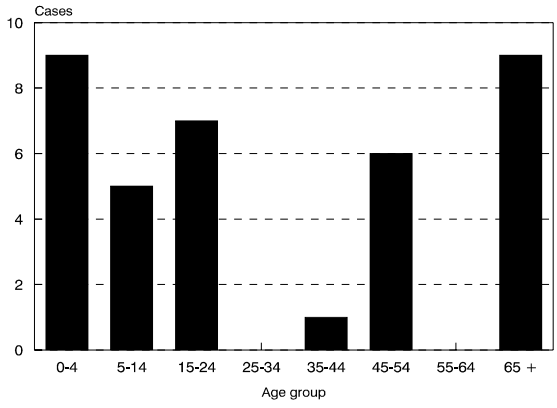
Meningococcal disease rate by year
Kansas, 1983-1998



Meningococcal cases by county
Kansas, 1998



Meningococcal disease cases by age group
Kansas, 1998



MUMPS

Mumps is an acute viral disease caused by a paramyxovirus. It is characterized by fever, swelling and tenderness of one or more salivary glands, usually the parotid and sometimes the sublingual or submaxillary glands. Orchitis may occur in males and oophoritis in females. Winter and spring are the times of increased occurrence. The incubation period is about 12 to 25 days, commonly 18 days. Mumps is transmitted by droplet spread and by direct contact with the saliva of an infected person.
Vaccine is available either as a single vaccine or in combination with rubella and measles live-virus vaccines (MMR). The vaccine has been available since 1971. The current recommendation in the USA is a routine two-dose MMR vaccine schedule, with the initial dose administered at 12-15 months of age. The second dose should be given at school entry (4-6 years of age).

Clinical Criteria

An illness with acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland, lasting $\geq$ 2 days, and without other apparent cause.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of mumps virus from clinical specimen, ***or***
- Significant rise between acute- and convalescent-phase titers in serum mumps immunoglobulin G antibody level by any standard serologic assay, ***or***
- Positive serologic test for mumps immunoglobulin M (IgM) antibody.

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case. A laboratory confirmed case does not need to meet the clinical case definition.

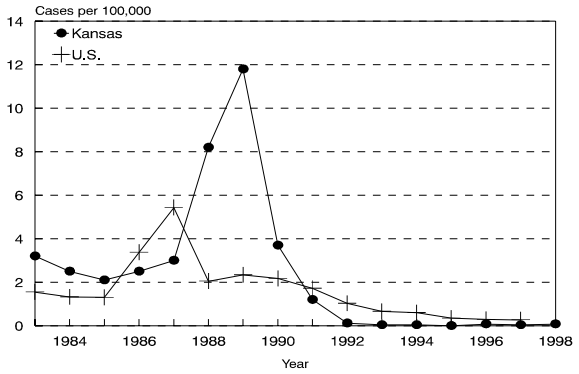
- *Probable:* a case that meets the clinical case definition, has noncontributory or noserologic or virologic testing, and is not epidemiologically linked to a confirmed or probable case.

Epidemiology and Trends

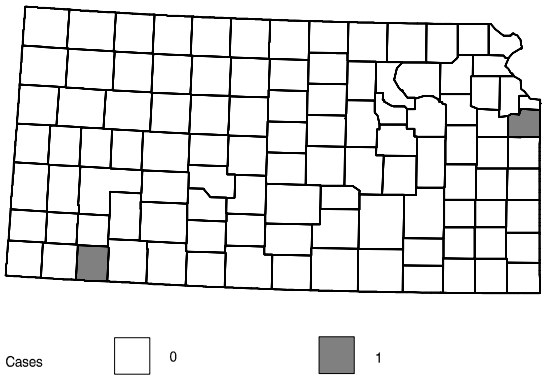
1998 Case Total	2
Kansas rate	0.1 per 100,000
U.S. rate (1997)	0.3 per 100,000

There were significant outbreaks of mumps in Kansas in 1988 and 1989. The outbreaks occurred due to the under immunization, not only in Kansas, but nationwide. Since 1992, there have been 0-2 cases reported annually in the state. One patient had no documented history of MMR vaccine.

Mumps rate by year
Kansas, 1983-1998



Mumps cases by county
Kansas, 1998



PERTUSSIS (WHOOPING COUGH)

Pertussis is an acute bacterial disease involving the respiratory tract caused by the bacillus *Bordetella pertussis*. Cough is the characteristic symptom, and it can become paroxysmal within one to two weeks followed by a characteristic inspiratory whoop. The cough may be accompanied by post-tussive or vomiting and the disease can be fatal in young children. Fever is usually minimal throughout the course. Infants may present with apnea or cyanosis, while adults may present only with a chronic spasmodic cough. The incubation period is commonly 5 - 10 days, up to 21 days. Transmission is by contact with respiratory secretions of infected persons. Active immunization with five doses of DTaP (diphtheria and tetanus toxoid and acellular pertussis) vaccine at 2, 4, and 6 months, at 12-15 months and at school entry (4-6 years of age) can prevent this disease among young children, who are most severely affected. Immunity wanes over time, but the disease is usually less severe among older children and adults. In recent years, pertussis has been increasingly recognized among adolescents and young adults, pertussis vaccine is not recommended after the seventh birthday.

Clinical Criteria

A cough illness lasting $\geq$2 weeks with one of the following: paroxysms of coughing, inspiratory "whoop," or post-tussive vomiting, without other apparent cause.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *Bordetella pertussis* from clinical specimen ***or***
- Positive polymerase chain reaction for *B. pertussis*.

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed or one that meets the clinical case definition and is either laboratory confirmed or epidemiologically linked to a laboratory-confirmed case.
- *Probable:* a case that meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to a laboratory-confirmed case.

Comment

- All suspected cases of pertussis are reviewed by the KDHE Immunization Program staff.

Outbreak

- Between June - August, 1998, there were 28 culture positive and 10 epidemiologically linked cases in south- central Kansas. Almost all the culture positive cases were infants, most of whom were too young to have received the protective three doses of a pertussis-containing vaccine. Many of them were linked to an adult who had a chronic cough, but had not been recognized as having pertussis.

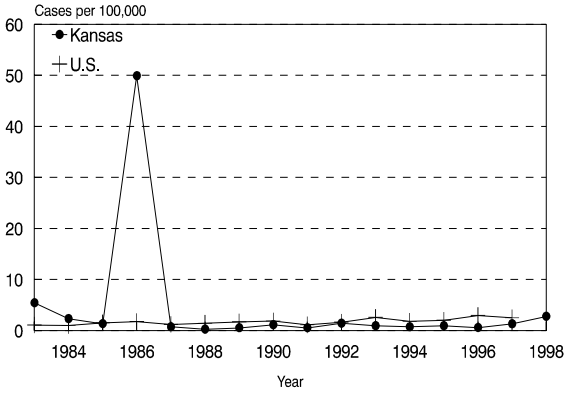
Epidemiology and Trends

1998 Case Total	71
Kansas rate	2.7 per 100,000
U.S. rate (1997)	2.5 per 100,000
Rate by gender	
Female	2.7 per 100,000
Male	2.7 per 100,000
Rate by race/ethnicity	
White	2.4 per 100,000
African-American	3.3 per 100,000
Asian/Pacific Islander	4.5 per 100,000
Native American	4.3 per 100,000
Hispanic	9.1 per 100,000
Rate by geographic area	
Urban	5.0 per 100,000
Rural	0.6 per 100,000

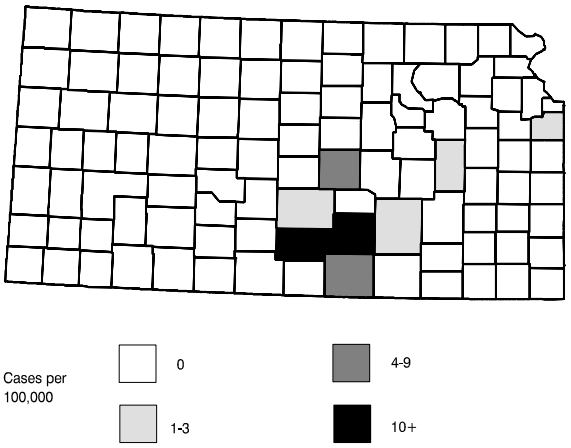
Reported cases of pertussis in Kansas increased by 115%, 71 cases in 1998 from 33 cases in 1997. This increase can be attributed to an outbreak that occurred in south-central Kansas. Although pertussis affects all age group, it is particularly severe and more commonly recognized and diagnosed in infants and young children The cases ranged in age from infants less than 1 to 60 years of age. The median age was 8 years. Children 0-4 years of age experienced pertussis at a rate of 25.6 cases per 100,000 population and accounted for 65% of total pertussis morbidity.

The ratio of female (36) to male (35) was about one to one. The majority of the cases were Whites (80%) followed by Hispanics, which comprised 17% percent of the cases. Eight counties reported at least one case of pertussis. Sixty-one cases (86%) were reported from Sedgwick County. The county-specific incidence rate for Sedgwick County was 13.9 cases per 100,000 population. Eighty-nine percent of the cases were reported from south-central Kansas.

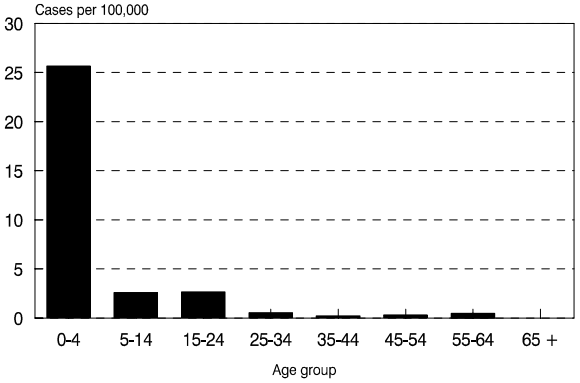
Pertussis rate by year
Kansas, 1983-1998



Pertussis rate by county
Kansas, 1998



Pertussis rate by age group
Kansas, 1998



RABIES, ANIMAL

Rabies is a viral infection caused by rabies virus, a rhabdovirus of the genus *Lyssavirus*. The disease affects the nervous system of mammals. Symptoms may include behavior changes, like unusual aggressiveness or paralysis (frequently beginning in the hind legs or the throat of an animal). Up-to-date vaccinations in dogs, cats, ferrets and livestock, prior to exposure, can protect these animals against the disease. The incubation period ranges from two weeks to many months. Rabies is almost always fatal once symptoms occur. It is usually transmitted by saliva from an infected animal's bite.

A dog, cat, or ferret inflicting a bite can be observed daily for 10 days following the bite to rule out rabies. If the animal remains healthy for that period, there is no risk of rabies transmission. If the animal develops signs of rabies or dies during the period, or belongs to a wildlife or exotic species, it must be euthanized humanely and arrangements must be made for rabies examination. Bats, raccoons, foxes, skunks, and other carnivorous wildlife should be presumed rabid until confirmed negative by laboratory diagnosis. Rodents, rabbits, hares, and opossums rarely transmit rabies, but any animal exhibiting unusual behavior should be suspected of carrying rabies.

Animal heads for rabies examination should be wrapped in several layers of plastic bags, placed in a leak-proof container with frozen gel packs, sealed, placed into a shipping box with a submission form, and sent to:

Veterinary Diagnostic Laboratory/Rabies Laboratory
College of Veterinary Medicine
Kansas State University - V.C.S. Building
1800 North Denison Avenue
Manhattan, KS 66506-5601

Contact the KSU rabies lab (785-532-4483) or KDHE (785-296-2951) for additional information on submitting specimens, or to answer other specific rabies questions.

Laboratory Criteria for Confirmation for Surveillance Purposes

- A positive direct fluorescent antibody test (preferably performed on central nervous system tissue), ***or***
- Isolation of rabies virus (in cell culture or in a laboratory animal).

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed.

Comment

- More detailed information on rabies in Kansas can be found at: www.vet.ksu.edu/depts/rabies.

Epidemiology and Trends

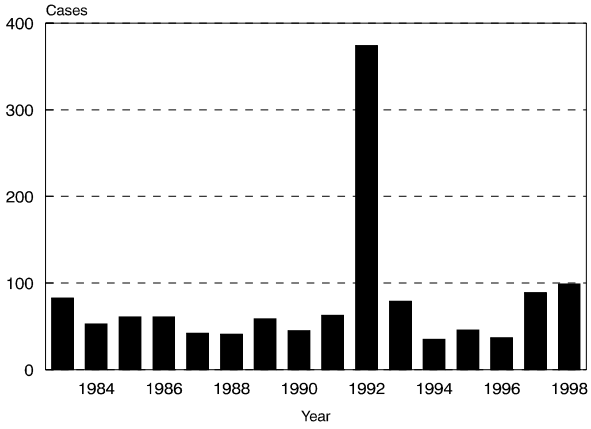
1998 Case Total	99
Number of counties reporting rabid animals	35 (33%)
Types of rabid animals	
Wild	85 (86%)
Domestic	
Pets	9 (9%)
Live stock	5 (5%)

In Kansas, 99 laboratory confirmed cases of rabies in animals were reported during 1998, a 11% increase from 1997 (89). Thirty-five counties reported at least one rabid animal. Wildlife species accounted for 86 (86%) of diagnosed cases; 75 skunks accounted for 87% of the wildlife species and 76% of the total. Other wildlife species included bats (6), foxes (2), coyote (1), and raccoon (1). Fourteen percent of rabies cases were among domestic animals (14); cats (6), dogs (3), cows (2), horses (2), and donkey (1).

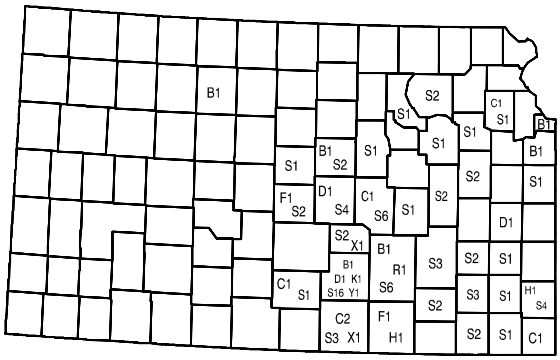
Rabies was not found in the following species tested in Kansas during the past 8 years (1991-1998):

Antelope, Baboon, Badger, Beaver, Bison, Chipmunk, Coati, Cougar, Deer, Ferret, Ground Squirrel, Gerbil, Goat, Gopher, Groundhog, Guinea Pig, Hamster, Hedgehog, Human, Lion, Llama, Mink, Mole, Mouse, Muskrat, Opossum, Pig, Porcine, Porcupine, Prairie Dog, Primate, Pronghorn, Rabbit, Rat, Ringtail, Rodent, Squirrel, Tiger, Weasel, Wolf, Woodchuck, other rodents/ lagomorphs.

Animal rabies by year
Kansas, 1983-1998



Animal rabies by species and county
Kansas, 1998



B=bat C=cat D=dog F=fox H=horse K=donkey R=raccoon S=skunk Y=coyote X=cow

Rabid animals by species
Kansas, 1998

Species	Number Tested	Number Positive	Percent Positive
Bat	81	6	7.4
Cat	661	6	0.9
Coyote	10	1	10
Cow	45	2	4.4
Dog	656	3	0.5
Donkey	2	1	50
Fox	3	2	66.6
Horse	13	2	15.4
Raccoon	85	1	1.2
Skunk	175	75	42.9

ROCKY MOUNTAIN SPOTTED FEVER

Rocky Mountain Spotted Fever (RMSF) is a disease caused by a rickettsial organism, *Rickettsia rickettsii*. It is most commonly characterized by acute onset of moderate to high fever, and is usually accompanied by myalgia, headache, and petechial rash (on the palms and soles in two thirds of the cases). Symptoms usually appear from 3 to about 14 days of the bite of an infected tick and fatalities can occur. One attack probably provides permanent immunity. RMSF is spread by the bite of an infected tick (including *Dermacentor variabilis*, the American dog tick, and *Amblyomma americanum*, the Lone star tick), or by contamination of the skin with tick blood or feces. Person-to-person spread or animal to human of RMSF does not occur. The tick must feed for 10-24 hours before the organism can be transmitted.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Fourfold or greater rise in antibody titer to *Rickettsia rickettsii* antigen by immunofluorescence antibody (IFA), complement fixation (CF), latex agglutination (LA), microagglutination (MA), or indirect hemagglutination antibody (IHA) test in acute- and convalescent-phase specimens ideally taken $\geq$3 weeks apart, ***or***
- Positive polymerase chain reaction assay to *R. rickettsii*, ***or***
- Demonstration of positive immunofluorescence of skin lesion (biopsy) or organ tissue (autopsy), ***or***
- Isolation of *R. rickettsii* from clinical specimen.

Surveillance Case Definition

- *Confirmed:* a clinically compatible case that is laboratory confirmed.

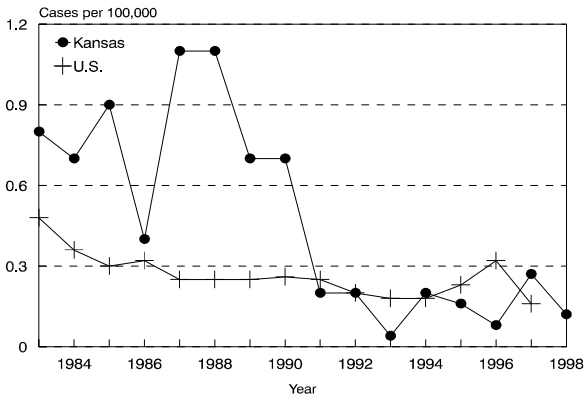
- *Probable:* a clinically compatible case with a single IFA serologic titer of $\geq$64 or a single CF titer of $\geq$16 or other supportive serology (fourfold rise in titer or a single titer $\geq$320 by Proteus OX-19 or OX-2, or a single titer $\geq$128 by an LA, IHA, or MA test).

Epidemiology and Trends

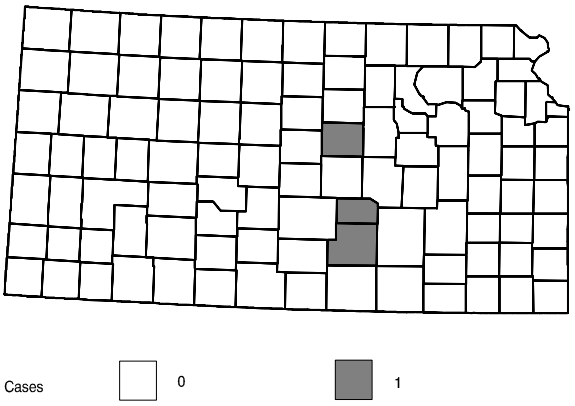
1998 Case Total	3
Kansas rate	0.1 per 100,000
U.S. rate (1997)	0.2 per 100,000

In the past 10 years, 1-28 cases have been reported annually. In 1998, there were three cases of RMSF reported.

Rocky Mountain Spotted Fever rate by year - Kansas, 1983-1998



Rocky Mountain Spotted Fever cases by county - Kansas, 1998



RUBELLA ("German Measles")

Rubella is a mild febrile viral disease caused by *Rubivirus* species. The symptoms are a fever and rash along with enlarged lymph nodes in the head and neck. While the illness is only rarely serious in children or adults, it can produce congenital anomalies or intrauterine death in women infected during pregnancy. Congenital rubella syndrome (CRS) occurs in up to 90% of infants born to women who acquired confirmed rubella during the first trimester of pregnancy. The incubation period is 16 to 18 days, and transmission is from respiratory or direct contact with infected persons. Rubella can be prevented by vaccination. The current recommendation in the USA is a routine two-dose MMR vaccine schedule, with the initial dose administered at 12-15 months of age. The second dose should be given at school entry (4-6 years of age). Vaccine should not be given to anyone who is immunosuppressed, or to pregnant women.

Clinical Criteria

An illness that has all the following characteristics: acute onset of generalized maculopapular rash; temperature >99.0 F (>37.2 C), if measured; arthralgia/arthritis, lymphadenopathy, or conjunctivitis

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of rubella virus, ***or***
- Significant rise between acute- and convalescent-phase titiers in serum rubella immunoglobulin G antibody level by any standard serologic assay, ***or***
- Positive serologic test for rubella immunoglobulin M (IgM) antibody

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed or that meets the clinical description and is epidemiologically linked to a laboratory-confirmed case
- *Probable:* a case that meets the clinical description, has no or noncontributory serologic or virologic testing, and is not epidemiologically linked to a laboratory-confirmed case
- *Suspected:* any generalized rash illness of acute onset

Comment

- All suspected cases of rubella are reviewed by the KDHE Immunization Program staff.

Outbreak

- There was an outbreak of rubella in 1998, with 35 confirmed cases. No case of CRS resulted.

Epidemiology and Trends

1998 Case Total	36
Kansas rate	1.4 per 100,000
U.S. rate	0.1 per 100,000

Cases by gender	
Female	9
Male	27

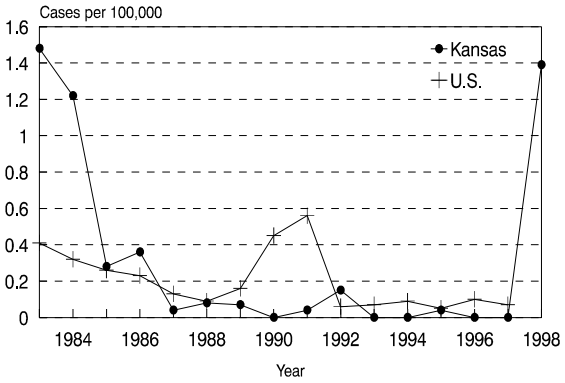
Cases by geographic area	
Urban	5
Rural	31

In 1998, there were 36 rubella cases reported in Kansas compared to no cases in 1997. Thirty-five cases were related to an outbreak in southwestern Kansas. The cases ranged in age from infants less than 1 to 47 years of age; median age was 29 years. 81% of the cases (27) were in males.

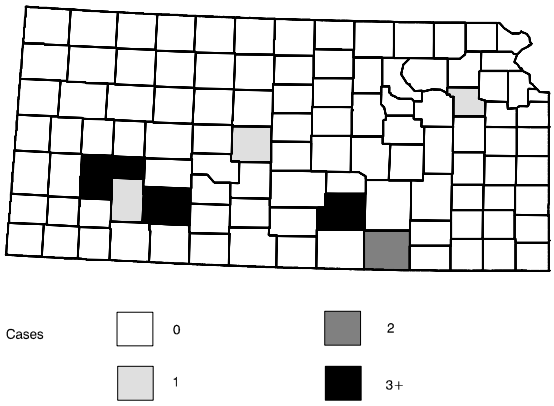
Of the 35 outbreak-related cases, 28 (80%) were among employees of meat-packing plants. The median age was 29 years (range was three months to 47 years) and 8 (23%) were female. Of the eight females, four were in childbearing age; two were infected during pregnancy, one in the second and one in the third trimester. Both women delivered full term healthy infants who had no clinical findings and had negative anti-rubella IgM antibodies.

Of the 35 outbreak-related cases, 28 (80%) were among persons of Hispanic ethnicity. Of the 32 cases with confirmed rubella infection and known place of birth, 20 (63%) were born in Latin American countries (15 in Mexico, 4 in El Salvador, one in Guatemala). However, the median duration of stay in the U.S. for those foreign-born was nine and a half years. Of 35 confirmed cases, 30 (86%) had no record of any rubella vaccination. Only one case reported travelling to Mexico two weeks prior to illness.

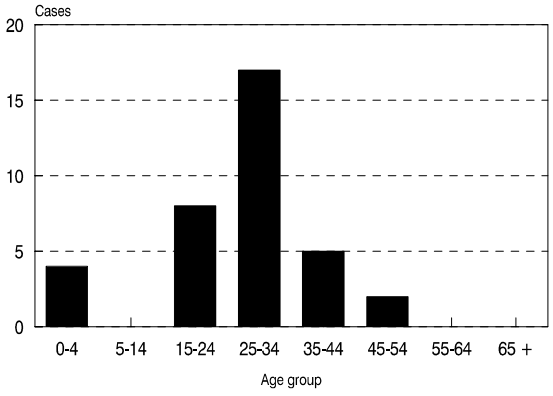
Rubella rate by year
Kansas, 1983-1998



Rubella cases by county
Kansas, 1998



Rubella cases by age group
Kansas, 1998



SALMONELLOSIS (non-typhoidal)

Salmonellosis is an enteric bacterial disease caused by numerous serotypes of *Salmonella*, which can be pathogenic for both animals and people. The symptoms include fever, headache, diarrhea, abdominal pain, nausea, and sometimes vomiting. Young children, people with special health conditions, and the elderly are more likely to experience severe symptoms with complications. It can cause severe dehydration and may become invasive. Asymptomatic infections can occur. The incubation period ranges from 6 to 72 hours, usually 12-36 hours. It is transmitted by ingestion. This includes eating or drinking raw and undercooked eggs, raw milk, contaminated water, meat, and poultry products. In addition, pet reptiles and chicks, other animals, and unsterilized pharmaceuticals of animal origin are potential sources of these bacteria.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *Salmonella spp.* from a clinical specimen.

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed.
- *Probable:* a clinically compatible case that is epidemiologically linked to a confirmed case.

Comment

- Kansas laws require that isolates be sent to Kansas Health and Environmental Laboratory for serotyping.

Outbreaks

- *Salmonella agona* in multiple states

  During April-May 1998, 11 states reported an increase in cases of *Salmonella agona* infections; a total of 209 cases were reported and at least 47 persons were hospitalized (22 cases of *S. agona* were reported and 3 were hospitalized in Kansas). The outbreak investigation implicated several brands of plain toasted oats cereal manufactured by Malt-O-Meal, Inc. as the cause of the illness. Among 162 patients in this outbreak for whom information was available, 85 (52%) were female. Most cases occurred among children and the elderly (47% in persons aged <10 years and 21% in persons aged >70 years). Cultures of open and unopened boxes of the cereal obtained from the home of a case-patient yielded *Salmonella agona*. The pulsed-field gel electrophoresis (PFGE) pattern of this isolate was indistinguishable from the predominant PFGE pattern among outbreak-associated clinical isolates.

- *Salmonella poona*

  During July-August, 1998, a total of 26 cases of *S. poona* were reported in Kansas and Missouri. Three cases from Kansas and 17 cases from Missouri were part of the outbreak. No causative source was identified.

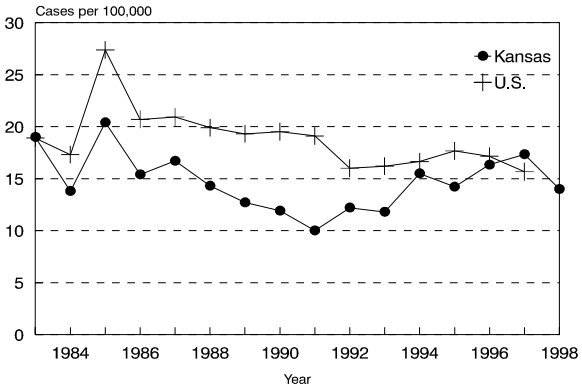
Epidemiology and Trends

Case Total	363
Kansas rate	14.0 per 100,000
U.S. rate (1997)	15.7 per 100,000
Rate by gender	
Female	14.3 per 100,000
Male	13.3 per 100,000
Rate by Race/ethnicity	
White	10.4 per 100,000
African-American	10.5 per 1000,000
Asian/Pacific Islander	4.5 per 100,000
Native Am.	8.6 per 100,000
Hispanic	12.8 per 100,000
Rate by geographic area	
Urban	13.9 per 100,000
Rural	13.8 per 100,000

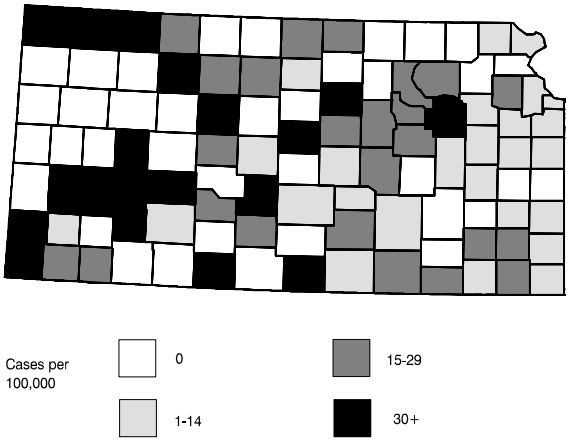
The 363 cases of salmonellosis reported in Kansas were a 19% decrease from the 446 cases reported in 1997, but over the past 10 years, the annual number of cases has been relatively steady. Twenty-five (7%) of the reported cases were linked to multistate outbreaks of *S. agona* and *S. poona*. The cases ranged in age from less than 1 to 97 years of age (median=21). The highest incidence occurred in those 0-4 year old age group with a rate of 60.8 per 100,000, which comprised 30% of the reported cases. Fifty-two percent of cases were female. Sixty-eight percent of the cases were in Whites, 5% in Hispanics, and 4% in African-Americans. The ratio of urban to rural was about one to one.

The serotype was available for 88% (321) of the salmonellosis cases reported, and 44 different serotypes were identified. The eight most frequently isolated serotypes were: *S. typhimurium* (118), *S. newport* (42), *S. enteritidis* (30), *S. agona* (22), *S. oranienburg* (12), *S. poona* (11), *S. heidelberg* (9), *and S. javiana* (8).

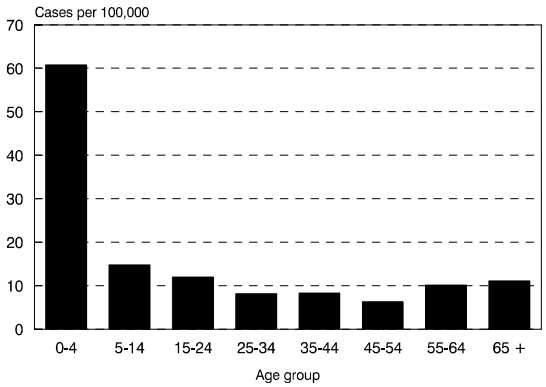
Salmonellosis rate by year
Kansas, 1983-1998



Salmonellosis rate by county
Kansas, 1998



Salmonellosis rate by age group
Kansas, 1998



SHIGELLOSIS

Shigellosis is a bacterial infection affecting the intestinal tract caused by bacteria belonging to the *Shigella* species. *S. dysenteriae*, *S. flexneri*, *S. boydii*, and *S. sonnei* account for most of the case. Only humans carry *Shigella*. Symptoms usually include bloody diarrhea, accompanied by fever, nausea, abdominal cramps, and tenesmus; asymptomatic infections may occur. Illness is often self-limiting lasting four to seven days, occasionally up to weeks or months. The incubation period ranges from 12 to 96 hours, but may be as long as one week. Transmission is by the fecal-oral route and very few organisms are needed for infection. The usual mode of transmission is from hands contaminated with human fecal material that are not adequately washed after toileting and subsequently transfer the bacteria to food or water. Person-to-person transmission also may occur. Flies may transmit the disease by carrying the bacteria on their legs to food.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *Shigella spp.* from a clinical specimen.

Surveillance Case Definition

- *Confirmed:* a case that is laboratory confirmed.
- *Probable:* a clinically compatible case that is epidemiologically linked to a confirmed case.

Comment

- Kansas laws require that isolates be sent to Kansas Health and Environmental Laboratory for serotyping.

Epidemiology and Trends

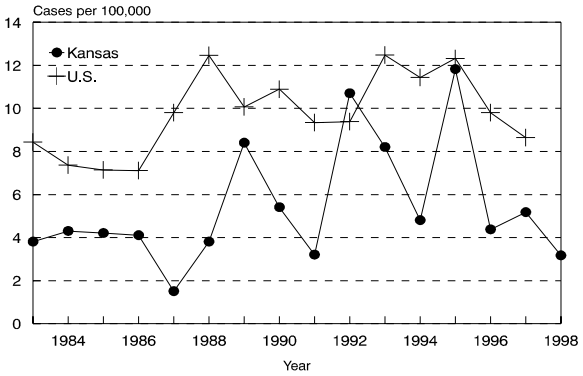
1998 Case Total	82
Kansas rate	3.2 per 100,000
U.S. rate (1997)	8.6 per 100,000
Rate by gender	
Female	3.2 per 100,000
Male	2.8 per 100,000
Rate by race/ethnicity	
White	2.3 per 100,000
African-American	3.9 per 100,000
Hispanic	17.3 per 100,000
Rate by geographic area	
Urban	3.6 per 100,000
Rural	2.6 per 100,000

Eighty two cases of shigellosis were reported in Kansas during 1998. This is a 62% decrease as compared to 133 cases reported in 1997. There were no reported outbreaks, just sporadic cases.

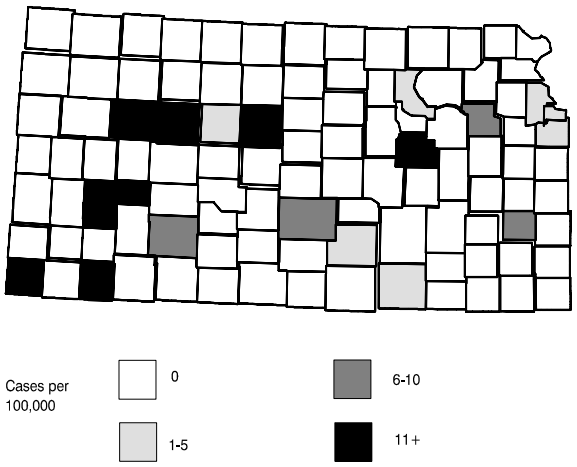
The cases ranged in age from less than 1 to 76 years; median age was 20 years. Children 0-4 years of age comprised 28% of the cases and experienced the highest age-specific incidence rate, 12.8 case per 100,000 population. Fifty-one percent of cases were in females. The incidence rate of shigellosis was significantly higher in Hispanics (17.3 cases per 100,000) than in Whites (2.3) or African-Americans (3.9). Fifty-six percent of the cases were reported from urban areas.

The serotype was identified for 87% of the cases. Of the 71 cases for whom this information was known, 80% were *S. sonnei*, 17% *S. flexneri*, and 3% other.

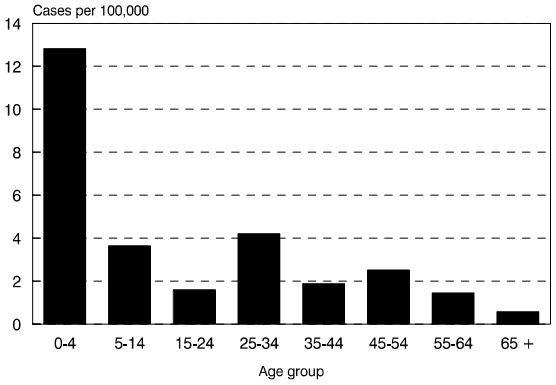
Shigellosis rate by year
Kansas, 1983-1998



Shigellosis rate by county
Kansas, 1998



Shigellosis rate by age group
Kansas, 1998



STREPTOCOCCUS PNEUMONIAE, drug-resistant invasive disease

Streptococcus pneumoniae causes many clinical syndromes, depending on the site of infection (e.g., acute otitis media, pneumonia, bacteremia, or meningitis). "Drug-resistant invasive" refers to *S. pneumoniae* infections involving normally sterile sites (such as blood, cerebrospinal fluid , joint, pleural, or pericardial fluid) that show intermediate- or high-level resistance to at least one antimicrobial agent currently approved for use in treating pneumococcal infection. Invasive streptococcus pneumoniae disease is characterized typically by sudden onset with a shaking chill, fever, pleural pain, dyspnea, tachypnea, and leukocytosis. The onset may be less abrupt, especially in the elderly. In infants and young children, fever, vomiting and convulsions may be the initial manifestations. Symptoms vary depending on the site and route of infection. The incubation period is not well determined; it may be as short as 1-3 days. Mode of transmission is by droplet spread, by direct oral contact, or indirectly through articles freshly soiled with respiratory discharges. Person-to-person transmission of the organisms is common, but illness among casual contacts and attendants is infrequent.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *S. pneumoniae* from a normally sterile site (e.g., blood, cerebrospinal fluid, or, less commonly, joint, pleural, or pericardial fluid) ***and***

- "Nonsusceptible" isolate (i.e., intermediate- or high-level resistance of the *S. pneumoniae* isolate to at least one antimicrobial agent currently approved for use in treating pneumococcal infection).

Surveillance Case Definition

- *Confirmed:* a clinically compatible case that is laboratory confirmed.

- *Probable:* a clinically compatible case caused by laboratory-confirmed culture of *S. pneumoniae* identified as "nonsusceptible" (i.e., an oxacillin zone size of <20 mm) when oxacillin screening is the only method of antimicrobial susceptibility testing performed.

Comment

- National Committee for Clinical Laboratory Standards (NCCLS) recommends that all invasive *S. pneumoniae* isolates found to be " possibly resistant" to beta-lactams (i.e., an oxacillin zone size of <20 mm) by oxacillin screening should undergo further susceptibility testing by using a quantitative minimum inhibitory concentration (MIC) method acceptable for penicillin, extended-spectrum cephalosporins, and other drugs as clinically indicated.

Epidemiology and Trends

1998 Case Total	6
Kansas rate	0.2 per 100,000
U.S. rate	N/A

Cases by gender	
Female	3
Male	3

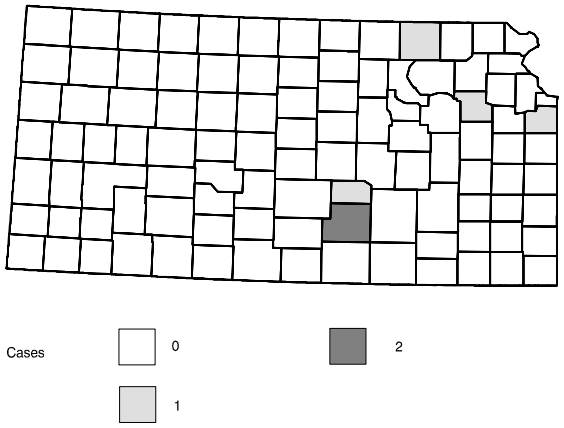
Cases by geographic area	
Urban	4
Rural	2

***Streptococcus pneumoniae*, drug-resistant invasive infection became a reportable condition in Kansas in 1998. There were 6 cases of *Streptococcus pneumoniae*, drug-resistant invasive disease reported. The cases ranged in age from 2 to 87 years; median age was 80 years. The ratio of female to male was one to one. 4 cases were reported from urban areas.**

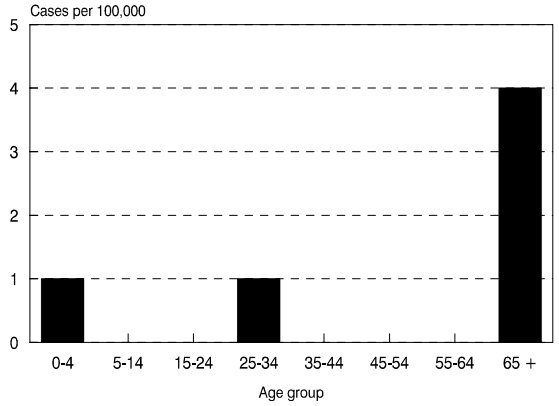
***Streptococcus pneumoniae*, drug-resistant invasive disease became reportable in 1998.**

No national data available.

Streptococcus pneumoniae, drug-resistant invasive disease cases by county
Kansas, 1998



Streptococcus pneumoniae, drug-resistant invasive disease cases by age group
Kansas, 1998



SYPHILIS, PRIMARY AND SECONDARY

Syphilis is a complex sexually transmitted disease caused by the spirochete *Treponema pallidum*. The infection usually progresses through four stages:

- *Primary Syphilis:* the most infectious stage, characterized by one or more chancres (ulcers) that appear 10 to 90 days after exposrure. The chancre appears at the site of exposure and heals within one to four weeks, even without treatment.
- *Secondary Syphilis:* a stage of infection characterized by localized or diffuse mucocutaneous lesions, often with generalized lymphadenopathy. The primary chancre may still be present. The skin eruptions can appear as a variety of different rashes and may begin while the chancre is present. However, it usually starts four weeks after the chancre resolves and can occur up to six months after inoculation. The rash resolves in two to six weeks, but may recur with infectious lesions for the first year of the disease. The most common secondary rash is a maculopapular rash of the palms and soles.
- *Early Latent Syphilis:* occurs when the primary and secondary symptoms resolve and lasts throughout the first year of infection. This stage represents the asymptomatic stage of the infection, however, all serologic tests for syphilis will be positive.
- *Late Latent:* characterized by manifestations that occur 5 to 20 years after infection. They include gummas (a lump with gummy contents); destructive lesions of the skin, viscera, bone and mucosa surfaces; cardiovascular syphilis, destructive lesions of the aorta; and neurosyphilis, destruction of areas of the central nervous system including the brain. Late syphilis can cause death or permanent disability. During the course of the infection, syphilis is latent (asymptomatic).

Fetal infection often occurs in pregnant women with untreated primary, secondary or early latent syphilis. It can also occur, with less frequency, in women who have untreated late latent syphilis. This infection may cause stillbirth, infant death, or severe complications that do not manifest and become apparent until much later in life. They include interstitial keratitis, saber shins, Hutchinson's teeth, saddlenose, and deafness. The presence of the lesions caused by primary and secondary syphilis increases risk of acquiring HIV infection. Syphilis is transmitted by direct contact with infectious exudates from lesions of the skin and mucous membranes, body fluids and secretions (saliva, semen, blood, vaginal discharges) of infected people during sexual contact. Transmission can occur through blood transfusion if the donor is in the early stages of the disease. Fetal infection usually occurs through placental transfer or at delivery.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Demonstration of *T. pallidum* in clinical specimens by darkfield microscopy, direct fluorescent antibody (DFA-TP), or equivalent methods, or by clinical manifestations of acquired infection.

Surveillance Case Definition

- Confirmed: a clinically compatible case that is laboratory confirmed.

Epidemiology and Trends

1998 Case Total	12
Kansas rate	0.5 per 100,000
U.S. rate (1997)	3.2 per 100,000
Cases by gender	
Female	5
Male	7
Cases by geographic area	
Urban	9
Rural	3

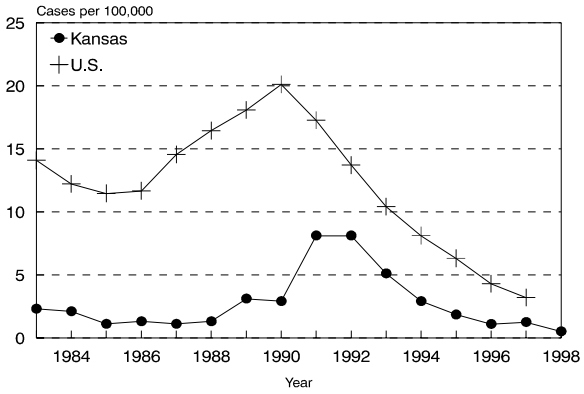
Primary and secondary (P&S) cases in Kansas increased dramatically in 1989, followed by a sharp decline beginning in 1993. This decrease mirrors similar trends at the national level.

In 1998, the number of reported Kansas primary and secondary syphilis cases (12) decreased a 63% from 1997 (32). The Kansas rate decreased from 1.1 cases per 100,000 population in 1997 to 0.5 cases per 100,000 population in 1998. This is well below the 1997 national rate of 3.2 cases per 100,000 population.

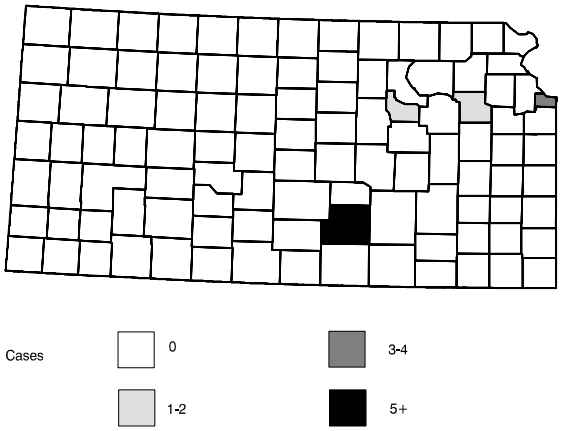
The cases ranged from 18 to 53 years of age. The median age was 36 years. Fifty-seven percent of the cases were males. Minority racial/ethnic populations are disproportionately affected by P&S syphilis in Kansas. Sixty-seven percent of the cases were African-Americans.

Mirroring the trend for gonorrhea, 75% of the P&S cases in the state were reported from the four metropolitan areas. No cases of congenital syphilis or neurosyphilis were reported for the year.

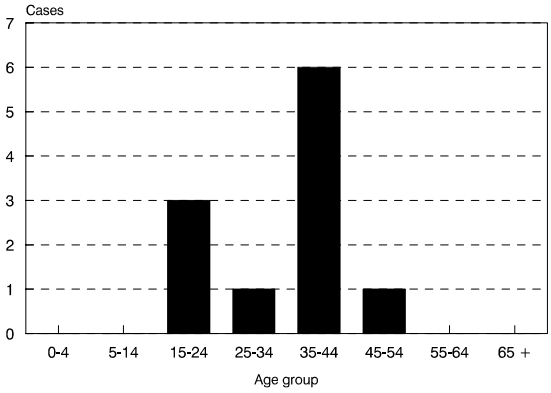
Primary and secondary syphilis rate
by year - Kansas, 1983-1998



Primary and secondary syphilis cases by county
Kansas, 1998



Primary and secondary syphilis cases
by age group - Kansas, 1998



TOXIC SHOCK SYNDROME, streptococcal and staphylococcal

Toxic-shock syndrome (TSS) is a severe illness associated with invasive or noninvasive group A streptococcal (*Streptococcus pyogenes*) and staphylococcal infections. The illness may occur with infection at any site but most often occurs in association with infection of a cutaneous lesion. Signs of toxicity and a rapidly progressive clinical course are characteristic, and the case-fatality rate may exceed 50%. TSS is characterized by sudden onset of high fever, vomiting, profuse watery diarrhea, myalgia and hypotension and, shock. A rash, which may result in desquamation of the skin, occurs in the first two weeks of illness. The incubation period is short, usually 1-3 days. Strains of TSS bacteria are rarely present in vaginal cultures from healthy women, but are regularly recovered from women with menstrually associated TSS or in those with TSS following gynecologic surgery. Although almost early cases of TSS occurred in women during menstruation, and most with vaginal tampon use, only 55% of cases now reported are associated with menses. Other risk factors include use of contraceptive diaphragms and vaginal contraceptive sponges, and infection following childbirth or abortion.

Clinical Criteria

An illness with the following clinical manifestations:

- *Fever:* temperature ≥102.0 F (≥38.9 C).
- *Rash:* diffuse macular erythroderma.
- *Desquamation:* 1-2 weeks after onset of illness, particularly on the palms and soles.
- *Hypotension:* systolic blood pressure ≤90 mm Hg for adults or less than fifth percentile by age for children aged <16 years; orthostatic drop in diastolic blood pressure ≥15 mm Hg from lying to sitting, orthostatic syncope, or orthostatic dizziness.
- *Multisystem involvement* -- three or more of the following:

  Gastrointestinal: vomiting or diarrhea at onset of illness.

  Muscular: severe myalgia or creatine phosphokinase level at least twice the upper limit of normal for laboratory.

  Renal: blood urea nitrogen or creatine at least twice the upper limit for normal for laboratory or urinary sediment with pyuira (≥5 leukocytes per high-power field) in the absence of urinary tract infection.

  Hepatic: total bilirubin, serum glutamic-oxaloacetic transaminase (SGOT), or serum glutamic-pyruvic transaminase (SGPT) at least twice the upper limit of normal for laboratory.

  Central Nervous System: disorientation or alterations in consciousness without focal neurologic signs when fever and hypotension are absent.

Laboratory Criteria for Confirmation for Surveillance Purposes

Negative results on the following tests, if obtained:

- Blood, throat, or cerebrospinal fluid cultures (blood culture may be positive for Staphylococcus aureus).
- Rise in titer to Rocky Mountain Spotted Fever, leptospirosis, or measles.

Surveillance Case Definition

- *Confirmed:* a case in which all of the clinical findings described above are present, including desquamation, unless the patient dies before desquamation occurs.
- *Probable:* a case in which five of clinical findings described above are present.

Epidemiology and Trends

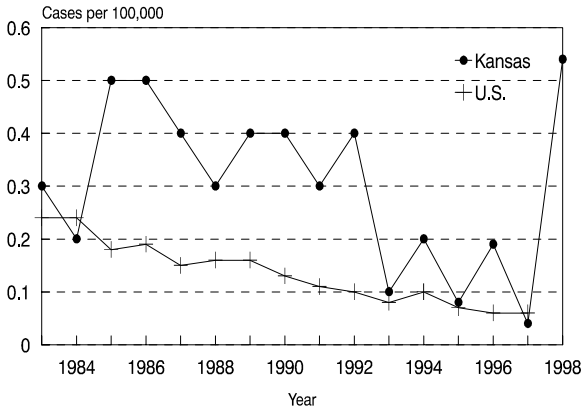
1998 Case Total	14
Kansas rate	0.5 per 100,000
U.S. rate (1997)	0.1 per 100,000

Cases by gender	
Female	8
Male	6

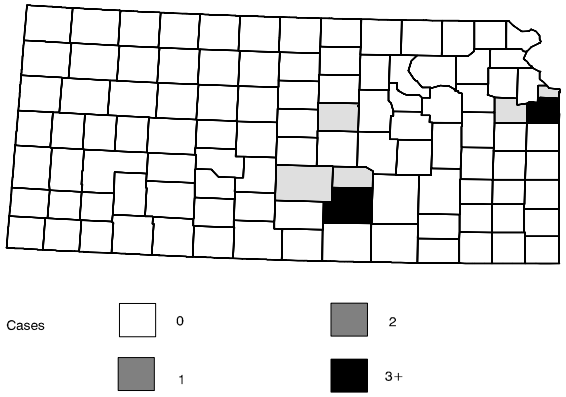
Cases by geographic area	
Urban	11
Rural	3

There were 14 cases of toxic shock syndrome reported in 1998; 10 of the cases were invasive group A streptococcal infections. The cases ranged in age from 2 to 94 years. The median was 41 years. 8 cases were reported in females. 11 cases were reported form urban areas. Among 10 cases of toxic shock syndrome for whom information was available, group A streptococcus was identified as the cause of illness. Thirteen cases were hospitalized, and one death was reported.

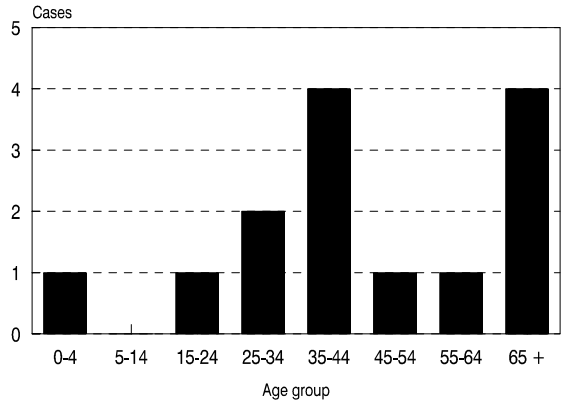
Toxic Shock Syndrome rate by year
Kansas, 1983-1998



Toxic shock syndrome cases by county
Kansas, 1998



Toxic shock syndrome cases
by age group - Kansas, 1998



TUBERCULOSIS (TB)

A chronic bacterial infection caused by organisms in the *Mycobacterium tuberculosis*. The most common site of infection is the lungs (pulmonary TB), but other organs (extrapulmonary TB) may be involved (e.g., brain, lymph nodes, kidneys, bones, joints, larynx, intestines, eyes). Systemic symptoms include low-grade fever, night sweats, fatigue, and weight loss. In pulmonary or laryngeal TB, there may also be hemoptysis, a persistent and productive cough, chest pain, and shortness of breath. The incubation period is about 4-12 weeks, from infection to demonstrable primary lesion or significant tuberculin reaction. Tuberculosis is transmitted by exposure to tubercle bacilli through inhalation in airborne droplet nuclei produced by infected people. Prolonged close contact with cases may lead to infection. Epidemics of tuberculosis have occurred in individuals in enclosed places, such as nursing homes, jails, hospitals, schools, office buildings, and factories. There are now multi-drug resistant (i.e., resistance to both isoniazid and rifampin) forms of *M. tuberculosis*.

Clinical Criteria

- A positive tuberculin skin test.
- Other signs and symptoms compatible with tuberculosis (e.g., an abnormal, unstable [i.e., worsening or improving] chest radiographs, or clinical evidence of current disease).
- Treatment with two or more antituberculosis medications.
- Completed diagnostic evaluation.

Laboratory Criteria for Confirmation for Surveillance Purposes

- Isolation of *M. tuberculosis* from a clinical specimen ***or***
- Demonstration of *M. tuberculosis* from a clinical specimen by nucleic acid amplification test, ***or***
- Demonstration of acid-fast bacilli in a clinical specimen when a culture has not been or cannot be obtained.

Surveillance Case Definition

- *Confirmed:* a case that meets the clinical case criteria or is laboratory confirmed.

Comment

- A case should not be counted twice within any consecutive 12-month period. However, cases in which the patients had previously had verified disease should be reported again if the patients were discharged from treatment. Cases also should be reported again if patients were lost to supervision for > 12 months and disease can be verified again. Mycobacterial diseases other than those caused by *M. tuberculosis* complex should not be counted in tuberculosis morbidity statistics unless there is concurrent tuberculosis.
- Isolates must be sent to Kansas Health and Environmetal Laboratory.

Epidemiology and Trends

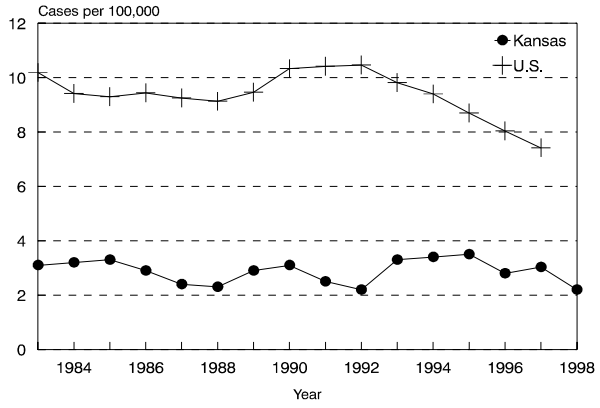
1998 Total Case	56
Kansas rate	2.3 per 100,000
U.S. rate (1997)	7.4 per 100,000
Rate by gender	
Female	1.6 per 100,000
Male	2.7 per 100,000
Rate by race/ethnicity	
White	1.3 per 100,000
African-American	4.6 per 100,000
Asian/Pacific Islander	38.6 per 100,000
Hispanic	12.1 per 100,000
Rate by geographic area	
Urban	3.1 per 100,000
Rural	1.3 per 100,000

There were 56 tuberculosis cases reported in 1998. This represented a 28% decrease over the 78 cases reported in 1997. The incidence rate dropped in 1998 to 2.2 cases per 100,000 population, well below the national average. Cases ranged in age from 0 to 92 years of age; median age was 48 years, and the majority of the cases were males (63%). Seventy percent of the cases resided in the four most populous metropolitan areas of the state. Counties with high percentage of total cases were Sedgwick (38%), Johnson (16%), and Wyandotte (13%).

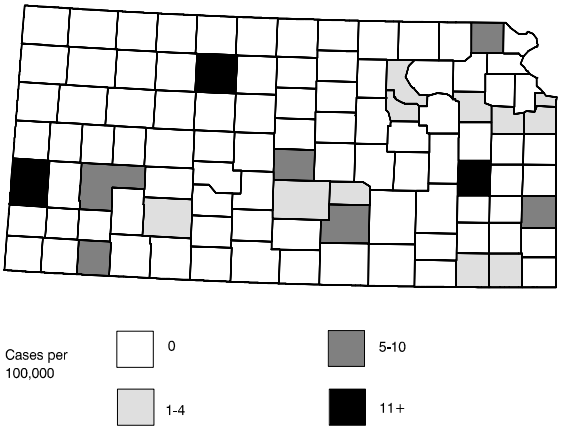
Reported TB cases in Kansas is not evenly distributed among the various racial and ethnic groups; 32 Whites (57%), 17 Asian/Pacific Islanders (30%), 16 Hispanics (29%) and 7 African-Americans (13%). This probably results from disproportionate numbers of high-risk individuals in certain racial and ethnic groups. Foreign-born persons are another important population group at risk of developing tuberculosis. Thirty-one (55%) of all cases of TB in the state occurred among foreign-born individuals.

Tuberculosis is a systemic disease with diverse manifestations. Although the site of disease involvement is usually the lungs (68%), extrapulmonary infection represents about 25% of cases in 1998. 7% of the total cases affected both the lungs and other sites. Multi-drug resistance (MDR) is not an important problem in Kansas. One case of MDR was reported in 1998.

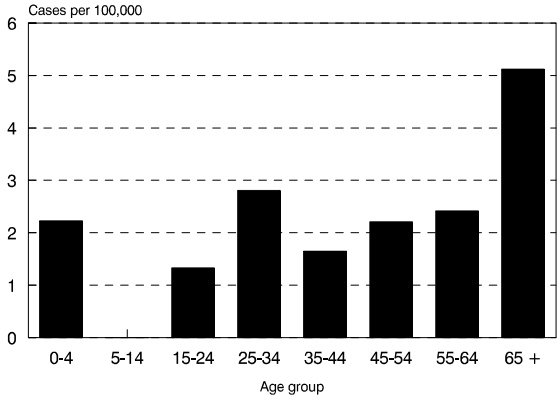
Tuberculosis rate by year
Kansas, 1983-1998



Tuberculosis rate by county
Kansas, 1998



Tuberculosis rate by age group
Kansas, 1998



TULAREMIA

Tularemia is caused by the bacterium *Francisella tularensis*, with a variety of clinical presentations including lymphadenopathy, with or without cutaneous ulceration, and with or without conjunctivitis; pharyngitis, sepsis, intestinal signs, pneumonic disease, and a typhoidal illness without localizing signs and symptoms. Clinical signs are dependent on the route of exposure. The incubation period ranges 1-14 days, usually 3-5 days. Clinical diagnosis is supported by evidence or history of a tick or deerfly bite, exposure to tissues of a mammalian host of *Francisella tularensis*, or exposure to potentially contaminated water. Hunters or other people who spend a great deal of time out of doors are at greater risk of exposure to tularemia than people with other occupational or recreational interests.

Laboratory Criteria for Confirmation for Surveillance Purposes

Confirmatory

- Isolation of *F. tularensis* from a clinical specimen, ***or***
- Fourfold or greater change in serum antibody titer to *F. tularensis* antigen

Presumptive

- Elevated serum antibody titer(s) to *F. tularensis* antigen (without documented fourfold or greater change) in a patient with no history of tularemia vaccination ***or***
- Detection of F. tularensis in a clinical specimen by fluorescent assay

Surveillance Case Definition

- *Confirmed:* a clinically compatible illness that is laboratory confirmed

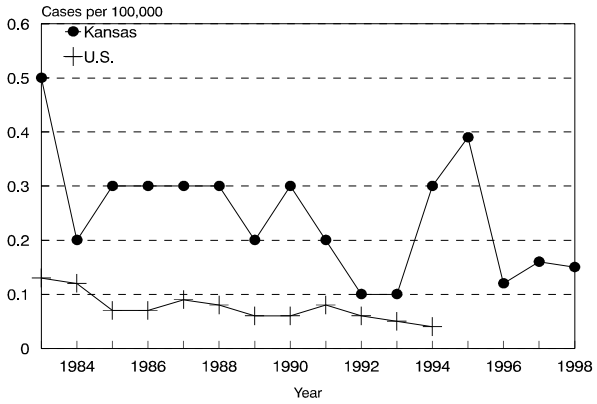
- *Probable:* a clinically compatible case with laboratory results indicative of presumptive infection

Epidemiology and Trends

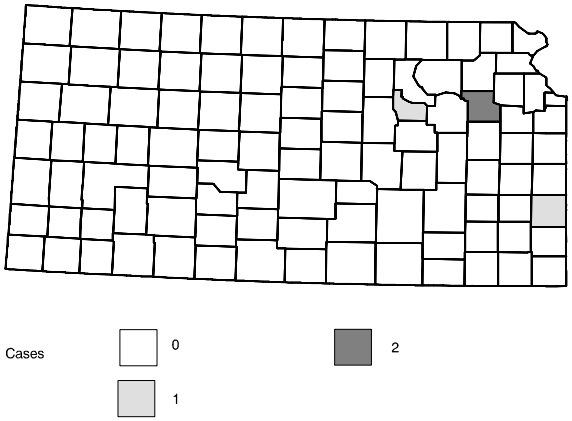
1998 Case Total	4
U.S. rate (1994)	<0.1 per 100,000

Fifty-two cases of Tularemia were reported in Kansas for the ten year period 1989-1998; 3-10 cases were reported annually. In 1998, four cases of tularemia were reported. The cases ranged in age from 10 to 82 years with a median age of 58.

Tularemia rate by year
Kansas, 1983-1998



Tularemia cases by county
Kansas, 1996



The following diseases are reportable, but had no cases reported in 1998.

Anthrax
Botulism
Brucellosis
Cholera
Diphtheria
Leprosy
Measles
Plague
Poliomyelitis
Psittacosis
Tetanus
Trichinosis
Typhoid fever
Yellow fever

SECTION II

TABLES

TABLE 1. LIST OF REPORTABLE DISEASES IN KANSAS, 1998

Reportable by health care providers, hospitals, and laboratories
(K.A.R. 65-118, 65-128, 65-6001 through 65-6007, K.A.R. 28-1-2, 28-1-4, 28-1-18)

Acquired Immune Deficiency Syndrome (AIDS)
Amebiasis
Anthrax
Botulism
Brucellosis
Campylobacter infections
Chancroid
Chlamydia trachomatis infection
Cholera
Cryptosporidiosis
Diphtheria
Encephalitis, infectious (indicate infectious agent whenever possible)
Escherichia coli O157:H7 (including hemolytic uremia syndrome) **(*)**
Giardiasis
Gonorrhea
Haemophilus influenzae, invasive disease
Hepatitis, viral and acute
Hepatitis B, perinatal infection
Hepatitis B infection in pregnant woman
Hantavirus pulmonary syndrome
Human Immunodeficiency Virus (HIV) - anonymous, reportable by physicians only
Legionellosis
Leprosy (Hansen's disease)
Lyme disease
Malaria
Measles (rubeola)
Meningitis, bacterial
***Meningococemia* (*)**
Mumps
Pertussis (whooping cough)
Plague
Poliomyelitis
Psittacosis
Rabies, human and animal
Rocky Mountain Spotted Fever
Rubella, including congenital rubella syndrome
Salmonellosis, including typhoid fever **(*)**

Shigellosis **(*)**
Streptococcus pneumoniae, drug-resistant invasive disease
Syphilis, including congenital syphilis
Tetanus
Toxic shock syndrome, streptococcal and staphylococcal
Trichinosis
Tuberculosis **(*)**
Tularemia
Yellow Fever

Outbreaks of any disease are reportable
(*) Send isolate to Kansas Health and Environmental Laboratory

Division of Health and Environmental Laboratories
Kansas Department of Health and Environment
Forbes Field, Building #740
Topeka, Kansas 66620-0001
Tel: (785) 296-1620

Bold -- Immediate telephone report of *suspect or confirmed* cases required to health department

Additional conditions reportable by laboratories (K.A.R. 28-1-18 effective August 16, 1993 and 28-1-22 effective December 24, 1990)

Blood lead level ≥ 10 µg/dL for persons < 18 years of age, and ≥ 25µg/dL for persons ≥ 18 years of age
CD4+ T-lymphocyte count of less than 200/ml or a CD4+ T-lymphocyte percent of total lymphocytes less than 14

Additional conditions reportable by hospitals (K.A.R. 28-1-4 effective May 1, 1986 and 28-1-22 effective December 24, 1990)

Cancer
Congenital malformations in infants under one year of age
Fetal alcohol syndrome

TABLE 2. COUNTY ABBREVIATIONS

AL	Allen
AN	Anderson
AT	Atchison
BA	Barber
BT	Barton
BB	Bourbon
BR	Brown
BU	Butler
CS	Chase
CQ	Chatauqua
CK	Cherokee
CN	Cheyenne
CA	Clark
CY	Clay
CD	Cloud
CF	Coffey
CM	Comanche
CL	Cowley
CR	Crawford
DC	Decatur
DK	Dickinson
DP	Doniphan
DG	Douglas
ED	Edwards
EK	Elk
EL	Ellis
EW	Ellsworth
FI	Finney
FO	Ford
FR	Franklin
GE	Geary
GO	Gove
GH	Graham
GT	Grant
GY	Gray
GL	Greeley
GW	Greenwood
HM	Hamilton
HP	Harper
HV	Harvey
HS	Haskell
HG	Hodgeman
JA	Jackson
JF	Jefferson
JW	Jewell
JO	Johnson
KE	Kearny
KM	Kingman
KW	Kiowa
LB	Labette
LE	Lane
LV	Leavenworth
LC	Lincoln
LN	Linn
LG	Logan
LY	Lyon
MN	Marion
MS	Marshall
MP	McPherson
ME	Meade
MI	Miami
MC	Mitchell
MG	Montgomery
MR	Morris
MT	Morton
NM	Nemaha
NO	Neosho
NS	Ness
NT	Norton
OS	Osage
OB	Osborne
OT	Ottawa
PN	Pawnee
PL	Phillips
PT	Pottawatomie
PR	Pratt
RA	Rawlins
RN	Reno
RP	Republic
RC	Rice
RL	Riley
RO	Rooks
RH	Rush
RS	Russell
SA	Saline
SC	Scott
SG	Sedgwick
SW	Seward
SN	Shawnee
SD	Sheridan
SH	Sherman
SM	Smith
SF	Stafford
ST	Stanton
SV	Stevens
SU	Sumner
TH	Thomas
TR	Trego
WB	Wabaunsee
WA	Wallace
WS	Washington
WH	Wichita
WL	Wilson
WO	Woodson
WY	Wyandotte

TABLE 3. MAP OF KANSAS

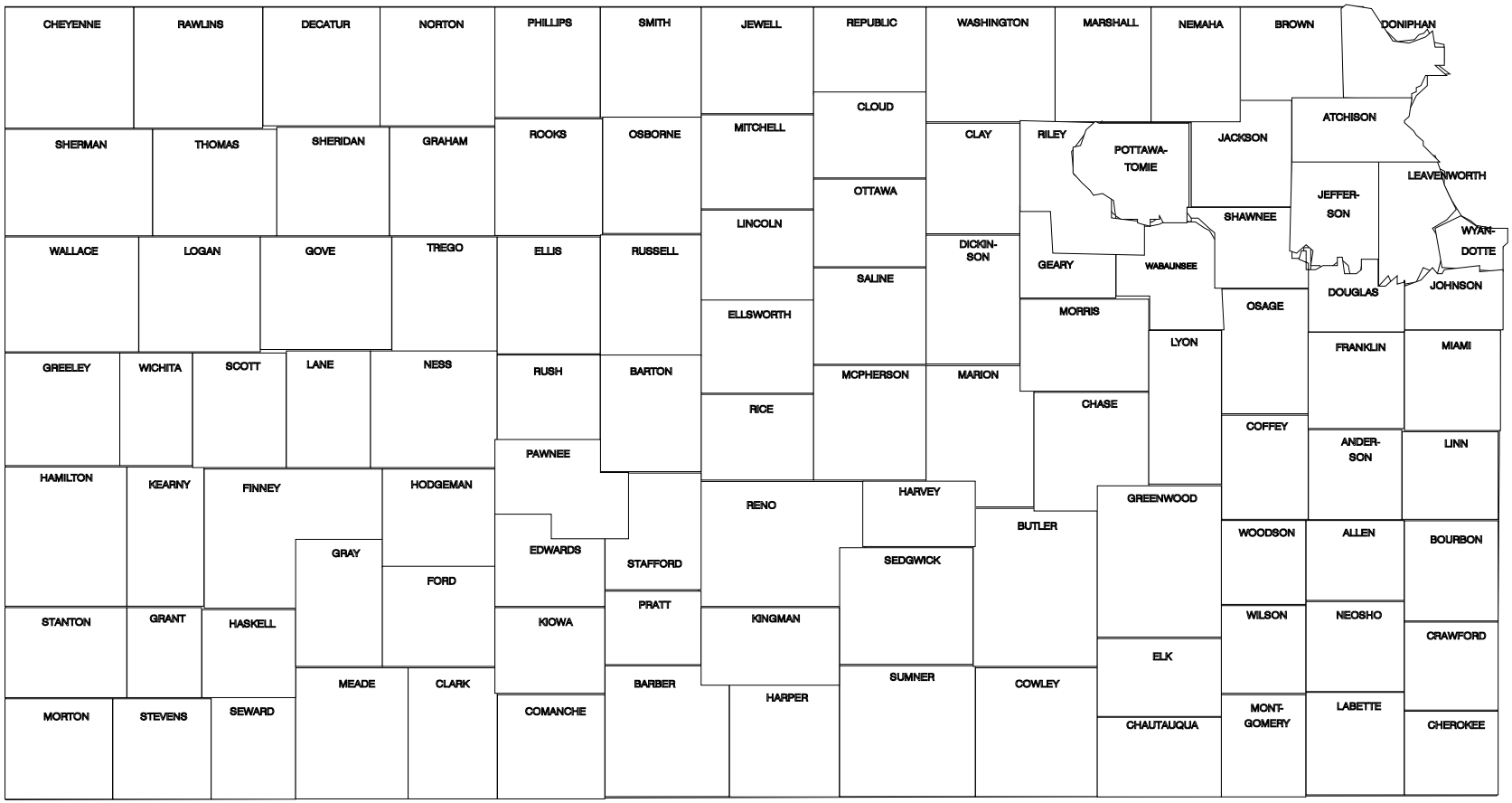


TABLE 4. CASES OF REPORTABLE DISEASES BY YEAR IN KANSAS, 1985-1998

DISEASE	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
AIDS	16	35	48	102	101	134	93	188	358	227	286	135	145	86
AMEBIASIS	29	22	49	36	19	4	1	1	22	15	2	8	9	5
ANTHRAX	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOTULISM, FOODBORNE	0	0	0	0	0	0	0	0	0	0	1	0	0	0
BOTULISM, INFANT	0	0	0	1	0	0	0	1	0	2	0	1	0	0
BOTULISM, OTHER	0	0	0	0	0	0	1	0	0	0	0	0	0	0
BRUCELLOSIS	2	1	0	0	1	1	0	0	0	0	0	1	0	0
CAMPYLOBACTERIOSIS	208	137	167	218	224	185	200	253	201	247	238	208	200	351
CHANCROID	0	0	4	1	1	13	5	3	1	5	2	2	0	1
CHICKENPOX *	9069	10367	8310	346	494	3253	3367	4179	1687	3190	1582	876	78	-
CHLAMYDIA	1124	1522	3042	3701	3772	5218	6791	7024	5694	6393	5315	4448	4698	5446
CHOLERA	0	0	0	1	0	0	0	0	0	0	0	0	0	0
CRYPTOSPORIDIOSIS	-	-	-	-	-	-	-	-	-	1	31	11	14	11
DIPHTHERIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E. coli O157:H7	-	-	-	-	-	2	4	4	11	25	29	33	30	39
ENCEPHALITIS, PRIMARY	6	2	12	9	6	13	5	5	7	7	11	2	2	1
ENCEPHALITIS, SLE	0	0	2	0	0	0	0	0	0	0	0	0	0	0
ENCEPHALITIS, WEE	0	0	0	1	0	0	0	0	0	0	0	0	0	0
GIARDIASIS	646	537	659	561	419	380	309	521	385	415	395	237	230	226
GONORRHEA	7006	6617	4482	4852	5183	4673	4637	4404	3710	3682	2797	2043	2094	2574
GRANULOMA INGUINALE ♢	0	1	0	0	0	0	0	0	0	0	0	0	0	-
HANSEN'S DISEASE	1	2	0	1	0	0	0	0	0	0	0	0	0	0

* Aggregate cases, no county specific data. Not reportable disease in 1998, but historical data provided.
♢ Not reportable disease in 1998, but historical data provided.

TABLE 4. CASES OF REPORTABLE DISEASES BY YEAR IN KANSAS, 1985-1998

DISEASE	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
HANTAVIRUS PULM. SYN.	-	-	-	-	-	-	-	-	1	4	0	2	2	2
HEPATITIS A	97	137	402	396	276	271	89	141	79	111	162	393	262	109
HEPATITIS B	97	94	99	159	121	139	56	66	65	31	53	32	32	28
HEP, C/NON-A NON-B	28	18	19	17	18	40	20	16	16	18	18	16	13	2
LEAD ≥ 10 µg/dL	-	-	-	-	-	-	-	-	545	1034	1202	1171	779	886
LEGIONELLOSIS	9	12	8	13	10	9	4	5	7	6	8	6	7	11
LEPTOSPIROSIS ♢	0	0	1	0	0	0	0	0	0	0	0	0	0	-
LYME DISEASE	0	0	0	5	17	21	22	18	55	17	23	36	4	11
LYMPHOGRANULOMA VEN.♢	1	0	0	0	1	0	0	0	0	0	0	0	0	0
MALARIA	6	3	2	3	6	6	8	6	3	7	3	7	4	10
MEASLES	1	102	1	0	142	233	13	1	2	1	1	1	0	0
MENINGITIS, ASEPTIC ♢	58	64	93	64	110	69	73	114	202	79	117	39	43	-
MENINGITIS, HIB	70	59	72	62	64	31	19	12	4	3	2	3	0	1
MENINGITIS, OTHER	-	-	-	-	38	33	35	21	26	42	9	18	52	25
MENINGOCOCCAL DISEASE	16	16	28	25	9	22	26	17	36	28	28	27	26	37
MUMPS	51	61	74	205	297	91	31	3	1	1	0	2	1	2
PERTUSSIS	31	1229	17	6	12	27	12	34	24	18	23	14	33	71
PLAGUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
POLIOMYELITIS	0	0	0	0	0	-	-	0	0	0	0	0	0	0
PSITTACOSIS	1	0	0	0	0	1	0	1	0	0	0	0	0	0
RABIES, ANIMAL	63	63	33	39	58	45	63	374	79	35	46	37	89	99

♢ Not reportable disease in 1998, but historical data provided.

TABLE 4. CASES OF REPORTABLE DISEASES BY YEAR IN KANSAS, 1985-1998

DISEASE	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
RABIES, HUMAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RHEUMATIC FEVER ♢	1	6	11	10	6	1	2	0	3	1	0	1	0	-
RMSF	27	10	28	28	18	18	6	5	1	4	4	2	7	3
RUBELLA	7	9	1	2	2	0	1	4	0	0	1	0	0	36
RUBELLA, CONGENITAL	0	0	0	0	0	0	0	1	0	0	0	0	0	0
SALMONELLOSIS	501	379	413	358	318	295	245	304	299	397	363	419	446	363
SHIGELLOSIS	104	102	36	94	211	135	79	266	208	123	302	112	133	82
SYPHILIS, P AND S	34	35	30	38	82	87	201	203	129	74	47	28	32	12
STREP. PNEU., DR-INV	-	-	-	-	0	0	0	0	0	0	0	0	1	6
SYPHILIS, CONGENITAL	-	0	1	0	0	2	0	2	3	2	2	0	0	0
SYPHILIS, ALL STAGES	139	152	103	139	175	177	373	356	282	188	147	136	174	106
TETANUS	0	1	3	0	0	0	0	0	2	1	2	0	0	0
TOXIC SHOCK SYNDROME	12	12	9	8	10	11	8	9	3	5	2	5	1	14
TRICHINOSIS	0	0	0	0	0	6	0	0	0	0	0	0	0	0
TUBERCULOSIS	82	72	60	58	72	78	62	56	83	84	89	73	78	56
TULAREMIA	8	8	8	8	6	7	5	3	3	7	10	3	4	4
TYPHOID FEVER	0	1	1	1	2	1	0	1	1	2	1	1	2	0
TYPHUS	1	0	0	1	0	0	0	0	0	0	0	0	0	0
URETHRITIS ♢	837	898	1097	788	726	908	1006	871	912	914	822	522	381	357
VAGINITIS ♢	3250	4000	5374	5175	5285	4977	3975	3426	3489	2944	730	269	156	41
YELLOW FEVER	0	0	0	0	0	0	0	0	0	0	0	0	0	0
YERSINIOSIS ♢	-	-	-	-	-	-	-	3	1	2	2	1	0	-

♢ Not reportable disease in 1998, but historical data provided.

TABLE 5. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 1998

	AL	AN	AT	BA	BB	BR	BT	BU	CA	CD	CF	CK	CL	CM	CN
AIDS	0	0	*	0	0	*	0	*	0	0	0	*	*	0	0
AMEBIASIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAMPYLOBACTERIOSIS	0	0	0	1	1	0	2	6	2	0	0	1	0	0	1
CHANCROID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHLAMYDIA	36	8	25	2	20	9	24	53	0	14	8	6	71	0	0
CRYPTOSPORIDIOSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E. coli O157:H7	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0
ENCEPHALITIS, PRIMARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GIARDIASIS	2	0	0	0	4	0	3	3	0	1	0	1	1	0	0
GONORRHEA	1	0	5	0	3	2	6	15	0	3	0	2	4	0	0
H. influenzae, INVASIVE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HANTAVIRUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEPATITIS A	0	0	2	0	0	2	2	1	0	0	1	0	0	0	0
HEPATITIS B	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0
HEPATITIS, C/NON-A NON-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEAD ≥ 10 µg/dL	6	4	17	1	30	3	7	4	0	0	7	15	19	1	0
LEGIONELLOSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LYME DISEASE	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
MALARIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MENINGITIS, BACTERIAL	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
MENINGOCOCCAL DISEASE	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0
MUMPS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERTUSSIS	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
RABIES, ANIMAL	1	1	0	0	0	0	0	8	0	0	0	1	2	0	0
RMSF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RUBELLA	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
SALMONELLOSIS	1	0	0	0	1	1	2	5	0	0	1	2	6	1	3
SHIGELLOSIS	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
STREP. PNEU., DR-INV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SYPHILIS, P AND S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SYPHILIS, ALL STAGES	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0
TOXIC SHOCK SYNDROME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUBERCULOSIS	0	0	0	0	1	1	0	0	0	0	2	0	0	0	0
TULAREMIA	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0

* Counties which reported fewer than 5 cases.

TABLE 5. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 1998

	CQ	CR	CS	CY	DC	DG	DK	DP	ED	EK	EL	EW	FI	FO	FR
AIDS	0	*	0	0	0	*	0	*	0	0	0	0	*	*	0
AMEBIASIS	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
CAMPYLOBACTERIOSIS	0	2	2	1	3	7	4	0	0	0	4	0	5	1	2
CHANCROID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHLAMYDIA	0	67	1	4	5	236	23	4	1	2	62	3	99	85	41
CRYPTOSPORIDIOSIS	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
E. coli O157:H7	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
ENCEPHALITIS, PRIMARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GIARDIASIS	0	4	0	2	0	7	1	0	0	1	0	0	7	5	3
GONORRHEA	0	6	0	1	0	88	1	2	0	0	5	0	15	12	2
H. influenzae, INVASIVE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HANTAVIRUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEPATITIS A	0	3	0	0	0	5	0	1	0	0	0	1	6	1	0
HEPATITIS B	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1
HEPATITIS, C/NON-A NON-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEAD ≥ 10 µg/dL	0	15	0	0	0	11	4	1	1	0	5	1	1	26	2
LEGIONELLOSIS	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1
LYME DISEASE	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
MALARIA	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
MENINGITIS, BACTERIAL	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
MENINGOCOCCAL DISEASE	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
MUMPS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERTUSSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RABIES, ANIMAL	0	5	1	0	0	0	1	0	0	2	0	1	0	0	0
RMSF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RUBELLA	0	0	0	0	0	0	0	0	0	0	0	0	12	15	0
SALMONELLOSIS	1	3	0	0	2	11	3	1	1	0	8	2	15	2	2
SHIGELLOSIS	0	0	0	0	0	0	0	0	0	0	1	0	14	2	0
STREP. PNEU., DR-INV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SYPHILIS, P AND S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SYPHILIS, ALL STAGES	0	0	0	0	0	0	0	1	0	0	1	1	6	5	0
TOXIC SHOCK SYNDROME	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
TUBERCULOSIS	0	0	0	0	0	1	0	0	0	0	0	0	2	1	0
TULAREMIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Counties which reported fewer than 5 cases.

TABLE 5. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 1998

	GE	GH	GL	GO	GT	GW	GY	HG	HM	HP	HS	HV	JA	JF	JO
AIDS	0	0	0	0	*	0	0	0	0	0	0	0	0	0	13
AMEBIASIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
CAMPYLOBACTERIOSIS	0	1	1	0	3	0	0	0	3	0	1	4	0	3	50
CHANCROID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHLAMYDIA	363	1	2	1	8	2	2	3	0	5	2	48	7	9	351
CRYPTOSPORIDIOSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E. coli O157:H7	1	0	0	0	0	1	0	0	0	0	0	0	0	1	5
ENCEPHALITIS, PRIMARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GIARDIASIS	3	0	0	0	1	1	0	0	0	0	0	3	0	0	36
GONORRHEA	147	0	0	1	0	0	1	0	0	1	0	11	0	1	135
H. influenzae, INVASIVE	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
HANTAVIRUS	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
HEPATITIS A	0	1	0	0	0	0	0	0	1	0	0	1	0	0	13
HEPATITIS B	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
HEPATITIS, C/NON-A NON-B	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
LEAD ≥ 10 µg/dL	3	1	0	0	0	0	0	1	0	2	0	0	5	0	28
LEGIONELLOSIS	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
LYME DISEASE	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0
MALARIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MENINGITIS, BACTERIAL	0	0	0	0	0	0	0	0	0	0	0	1	0	2	4
MENINGOCOCCAL DISEASE	0	0	0	0	0	0	0	0	0	0	1	0	0	1	4
MUMPS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PERTUSSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
RABIES, ANIMAL	0	0	0	0	0	3	0	0	0	0	0	3	0	2	1
RMSF	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
RUBELLA	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
SALMONELLOSIS	4	2	0	0	1	0	2	1	0	2	0	4	0	4	54
SHIGELLOSIS	0	0	0	1	0	0	0	0	0	0	0	0	0	0	12
STREP. PNEU., DR-INV	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
SYPHILIS, P AND S	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SYPHILIS, ALL STAGES	6	0	0	0	0	0	0	0	0	0	0	1	0	0	3
TOXIC SHOCK SYNDROME	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
TUBERCULOSIS	1	0	0	0	0	0	0	0	1	0	0	1	0	0	9
TULAREMIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Counties which reported fewer than 5 cases.

TABLE 5. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 1998

	JW	KE	KM	KW	LB	LC	LE	LG	LN	LV	LY	MC	ME	MG	MI
AIDS	0	0	0	0	0	0	0	0	0	*	*	0	0	*	*
AMEBIASIS	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
CAMPYLOBACTERIOSIS	0	4	2	1	6	0	0	3	1	8	1	0	0	0	4
CHANCROID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHLAMYDIA	3	8	4	1	23	2	0	0	7	95	57	17	2	54	19
CRYPTOSPORIDIOSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E. coli O157:H7	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
ENCEPHALITIS, PRIMARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GIARDIASIS	1	1	0	0	1	0	0	0	1	8	2	0	0	3	2
GONORRHEA	0	0	0	0	12	0	0	0	4	20	7	1	0	27	6
H. influenzae, INVASIVE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HANTAVIRUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEPATITIS A	0	0	0	0	2	0	0	0	0	1	1	0	0	1	0
HEPATITIS B	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
HEPATITIS, C/NON-A NON-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEAD ≥ 10 µg/dL	0	0	0	3	27	0	0	0	2	26	13	6	0	29	2
LEGIONELLOSIS	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
LYME DISEASE	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
MALARIA	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0
MENINGITIS, BACTERIAL	0	0	0	0	0	0	0	0	0	1	2	0	0	0	1
MENINGOCOCCAL DISEASE	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
MUMPS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERTUSSIS	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0
RABIES, ANIMAL	0	0	2	0	1	0	0	0	0	0	2	0	0	2	1
RMSF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RUBELLA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALMONELLOSIS	1	3	0	0	6	0	1	0	0	9	2	1	0	3	2
SHIGELLOSIS	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
STREP. PNEU., DR-INV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SYPHILIS, P AND S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SYPHILIS, ALL STAGES	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
TOXIC SHOCK SYNDROME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUBERCULOSIS	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
TULAREMIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Counties which reported fewer than 5 cases.

TABLE 5. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 1998

	MN	MP	MR	MS	MT	NM	NO	NS	NT	OB	OS	OT	PL	PN	PR
AIDS	0	0	0	0	0	0	0	*	0	0	*	0	0	0	0
AMEBIASIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAMPYLOBACTERIOSIS	1	8	2	0	8	0	0	1	3	0	3	1	2	0	2
CHANCROID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHLAMYDIA	2	28	4	6	1	0	5	2	1	2	12	4	1	7	9
CRYPTOSPORIDIOSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E. coli O157:H7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
ENCEPHALITIS, PRIMARY	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
GIARDIASIS	1	8	0	2	0	1	0	0	0	0	0	3	0	0	0
GONORRHEA	0	6	1	0	0	0	5	0	0	0	2	0	0	1	0
H. influenzae, INVASIVE	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
HANTAVIRUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEPATITIS A	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0
HEPATITIS B	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
HEPATITIS, C/NON-A NON-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEAD ≥ 10 µg/dL	0	6	0	3	1	1	18	0	1	0	1	1	0	8	3
LEGIONELLOSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LYME DISEASE	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
MALARIA	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
MENINGITIS, BACTERIAL	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
MENINGOCOCCAL DISEASE	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
MUMPS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERTUSSIS	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
RABIES, ANIMAL	7	5	0	0	0	0	1	0	0	0	2	0	0	0	0
RMSF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RUBELLA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SALMONELLOSIS	3	4	1	0	1	0	4	0	1	1	1	2	0	0	2
SHIGELLOSIS	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
STREP. PNEU., DR-INV	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
SYPHILIS, P AND S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SYPHILIS, ALL STAGES	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
TOXIC SHOCK SYNDROME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUBERCULOSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TULAREMIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Counties which reported fewer than 5 cases.

TABLE 5. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 1998

	PT	RA	RC	RH	RL	RN	RO	RP	RS	SA	SC	SD	SF	SG	SH
AIDS	0	0	0	0	*	*	0	0	0	*	0	0	0	25	0
AMEBIASIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAMPYLOBACTERIOSIS	4	1	2	0	11	8	0	1	3	36	2	0	0	42	0
CHANCROID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHLAMYDIA	21	2	15	3	186	97	6	4	4	107	2	0	4	1414	4
CRYPTOSPORIDIOSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0
E. coli O157:H7	0	0	1	1	4	1	0	0	0	1	1	0	0	2	1
ENCEPHALITIS, PRIMARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GIARDIASIS	5	1	1	0	12	9	0	0	0	9	0	0	0	35	5
GONORRHEA	1	0	3	0	35	23	0	0	0	48	0	0	2	753	4
H. influenzae, INVASIVE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HANTAVIRUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEPATITIS A	0	0	0	0	1	1	0	0	0	0	0	0	0	11	0
HEPATITIS B	0	0	0	0	0	4	0	0	0	1	0	0	0	3	1
HEPATITIS, C/NON-A NON-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEAD ≥ 10 µg/dL	10	0	0	0	7	17	1	1	0	51	2	0	0	154	4
LEGIONELLOSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
LYME DISEASE	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
MALARIA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
MENINGITIS, BACTERIAL	0	0	1	0	1	1	0	0	0	0	0	0	0	5	1
MENINGOCOCCAL DISEASE	0	0	0	0	2	1	0	0	0	3	0	0	0	6	0
MUMPS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERTUSSIS	0	0	0	0	0	1	0	0	0	0	0	0	0	61	0
RABIES, ANIMAL	2	0	3	0	1	0	1	0	0	3	0	0	0	20	0
RMSF	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
RUBELLA	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
SALMONELLOSIS	3	2	0	1	15	7	1	1	0	9	0	0	2	72	0
SHIGELLOSIS	0	0	0	0	2	5	0	0	1	0	0	0	0	11	0
STREP. PNEU., DR-INV	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
SYPHILIS, P AND S	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
SYPHILIS, ALL STAGES	0	0	1	0	0	2	0	0	1	0	0	0	0	40	0
TOXIC SHOCK SYNDROME	0	0	0	0	0	1	0	0	0	1	0	0	0	6	0
TUBERCULOSIS	0	0	1	0	1	1	1	0	0	0	0	0	0	21	0
TULAREMIA	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

* Counties which reported fewer than 5 cases.

TABLE 5. CASES OF REPORTABLE DISEASES BY COUNTY IN KANSAS, 1998

	SM	SN	ST	SU	SV	SW	TH	TR	WA	WB	WH	WL	WO	WS	WY	TOTAL
AIDS	0	7	0	0	0	0	0	0	0	0	0	0	0	0	13	86
AMEBIASIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
CAMPYLOBACTERIOSIS	0	40	2	0	2	0	2	0	1	1	0	0	1	1	19	351
CHANCROID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
CHLAMYDIA	1	429	2	30	1	26	20	4	0	3	3	5	9	0	955	5446
CRYPTOSPORIDIOSIS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	11
E. coli O157:H7	1	1	0	0	0	2	2	1	0	1	1	0	0	0	2	39
ENCEPHALITIS, PRIMARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
GIARDIASIS	0	14	0	0	0	1	0	0	1	0	0	0	0	0	10	226
GONORRHEA	0	264	0	12	0	5	4	2	2	0	0	1	1	0	852	2574
H. influenzae, INVASIVE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7
HANTAVIRUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
HEPATITIS A	0	42	0	0	0	2	0	0	0	0	0	0	0	0	3	109
HEPATITIS B	0	2	0	1	0	0	0	0	0	0	0	0	0	0	1	28
HEPATITIS, C/NON-A NON-B	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
LEAD ≥ 10 µg/dL	0	63	0	12	0	3	0	0	0	1	2	6	2	1	177	886
LEGIONELLOSIS	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	11
LYME DISEASE	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	11
MALARIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10
MENINGITIS, BACTERIAL	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	25
MENINGOCOCCAL DISEASE	0	3	0	1	0	0	0	0	0	0	0	0	0	0	7	37
MUMPS	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
PERTUSSIS	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	71
RABIES, ANIMAL	0	1	0	6	0	0	0	0	0	1	0	3	2	0	1	99
RMSF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
RUBELLA	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	36
SALMONELLOSIS	0	17	1	1	1	5	0	0	0	2	0	2	0	0	22	362
SHIGELLOSIS	0	16	0	0	0	3	0	1	0	0	0	0	0	0	7	81
STREP. PNEU., DR-INV	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	6
SYPHILIS, P AND S	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	12
SYPHILIS, ALL STAGES	0	10	1	0	0	1	0	0	0	0	0	0	0	0	20	106
TOXIC SHOCK SYNDROME	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	14
TUBERCULOSIS	0	1	0	0	0	1	0	0	0	0	0	0	0	0	7	56
TULAREMIA	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	4

* Counties which reported fewer than 5 cases.

TABLE 6. PUBLICATIONS ON DISEASE CONTROL IN KANSAS, 1998

Miller CE, Pezzino G, Potsic SR. Are immunization coverage rates for Kansas children improving? Kans Med. 1998;98:42-46.

Centers for Disease Control and Prevention. Human Exposure to Brucella abortus Strain RB51 -- Kansas, 1997. MMWR 1998;47(09):172-175.

Centers for Disease Control and Prevention. Multistate Outbreak of Salmonella Serotype Agona Infections Linked to Toasted Oats Cereal -- United States, April-May, 1998. MMWR 1998;47(22):462-464.

KDHE. Bureau of Disease Prevention and Health Promotion. Kansas Chlamydia Control Project Quarterly Update. 1998.

KDHE, Bureau of Disease Prevention and Health Promotion. Kansas AIDS/STD Update. July 1998.

KDHE, Bureau of Disease Prevention and Health Promotion. HIV/AIDS Epidemiology Profile. 1998.

KDHE, Office of Epidemiologic Services and Bureau of Disease Prevention and Health Promotion. Retrospective Immunization Coverage Survey, 1993-94 Results (School year 1997-1998). 1998.

KDHE, Office of Epidemiologic Services and Bureau of Disease Prevention and Health Promotion. Immunization Coverage Survey of Local Health Departments, Kansas, 1997. 1998.

KDHE, Office of Epidemiologic Services. Reportable Diseases in Kansas: 1997 Summary. 1998.

REFERENCES

1. Benenson A, editor. Control of Communicable Diseases in Man. 16th ed. Washington, D.C.: American Public Health Association; 1995.

2. American Academy of Pediatrics. Peter G, ed. 1997 Red Book: Report of the Committee on Infectious Diseases. 24th ed. Elk Grove Village, IL: American Academy of Pediatrics; 1997.

3. New York State Department of Health. Communicable Disease Fact Sheets. February 1999.

4. Bureau of Public Health Communicable Disease Section. Wisconsin Disease Surveillance Manual, 1997.

5. Illinois Department of Public Health. Illinois Infectious Disease Report, 1996.

6. Center for Disease Control and Prevention. Case Definitions for Infectious Conditions Under Public Health Surveillance, 1997. MMWR 1997;46(No. RR-10) .

7. Center for Disease Control and Prevention. Epidemiology and Prevention of Vaccine-Preventable Diseases, 1999. 5th ed.

8. Center for Disease Control and Prevention. Influenza Summary Update (for the week ending May 15, 1999 - Week 19).

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